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Recession with Inflation

The economy has weakened since the end of last year. Real ouput and productivity have declined. Labor markets and consumer spending have softened. It is widely believed that a moderation in the economy will lead to a diminution in inflation. However, such a result occurs only if the decline in economic activity is caused by a reduction in demand. The present weakness in the economy chiefly reflects an adverse shift in aggregate supply. As a result, inflation has accelerated and interest rates have moved higher.

Economic policy measures have probably been restrictive on balance so far this year. Although the pace of monetary expansion has accelerated since spring, the growth in government expenditures has been sharply reduced.

Real Economic Activity Declines

The economy's output of goods and services has slowed markedly since the end of last year. Real gross national product — that is, GNP adjusted for the effects of price level changes — declined at a 2.4 percent annual rate from the fourth quarter of 1978 to the second quarter of this year.

Moreover, there is reason to believe that output has continued to drift lower since the second quarter. Industrial production — which includes output of mines, factories, and utilities — has declined at nearly a 4 percent annual rate. Cutbacks in automobile production have been a major source of weakness.

Housing starts, another measure of physical activity, have moved downward since June. At 1.8 million units in August, housing activity was more than 10 percent lower than during much of last year. It is probable that new home building has been retarded by high interest rates. Even though mortgage interest rates have moved to historical highs, interest rates in other sectors of the economy have jumped even higher. As a consequence, funds have been diverted from housing.

Demand for Labor Weakens

Employment growth has slowed, reflecting the moderation in real output increases. Since the end of last year, employment has expanded at a 2.4 percent annual rate; by comparison total employment grew 3.6 percent in the preceding year.

Employment would have grown even less rapidly — indeed, it might have declined — if the nation's productivity growth had not fallen away from historic patterns. Since last year's fourth quarter, productivity has declined at a 3.3 percent annual rate. This decline follows subpar productivity gains during the preceding six years. Declines in productivity mean that more labor is required to produce a given level of output.

In part, recent productivity declines are a cyclical development. As business firms cut production in the early stages of recession there is normally a rise in the number of employees relative to plant and equipment usage. In addition to cyclical factors, the sharp and persistent rise in energy prices has rendered a portion of the existing capital stock and the corresponding production process economically inefficient. Increasingly, labor has become an economically efficient substitute for plant and equipment.

Unemployment has moved moderately higher since the end of last year. The rise in unemployment chiefly reflects the slowdown in employment growth. As a portion of the labor force, unemployment jumped to 6 percent in mid-August. The rate had fluctuated around the 5.7 percent level during the preceding half-year. In contrast, the unemployment rate had edged downward in the preceding 3½ years.

Household Spending Adjustments

Consumer spending has slowed markedly thus far in 1979, and its composition has shifted. Retail spending, which is importantly affected by "big-ticket" durables and other discretionary expenditures, has risen at a 4

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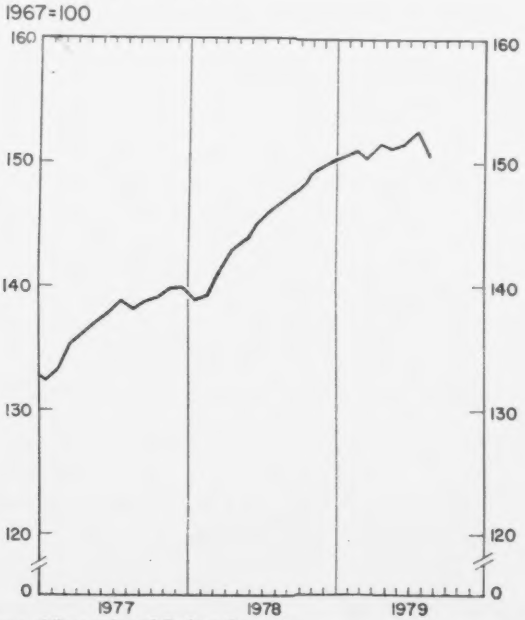
percent annual rate since last December, sharply lower than the 13.5 percent increase last year. The weakening in retail spending is even more dramatic after correcting for changes in consumer prices. Such spending rose about 6 percent in 1978; thus far this year, households have reduced their real retail purchases at more than a 6 percent annual rate.

Total consumer spending, including all nondiscretionary items (such as medical expenditures, food, and housing) has expanded at an 8.6 percent rate this year compared with a 12.4 percent rise last year. In real terms, consumer spending has declined at only a 1.2 percent rate, compared with a 4.5 percent increase in 1978.

In short, consumers are shifting their spending away from those expenditures that can be postponed, and paying what they must for those that cannot be avoided. This adjustment is in response to a sharp slowdown in the growth of real after-tax income. Disposable personal income, adjusted for declines in purchasing power, has risen only slightly since the final quarter of last year; it grew 4.2 percent in the preceding year.

Industrial Production



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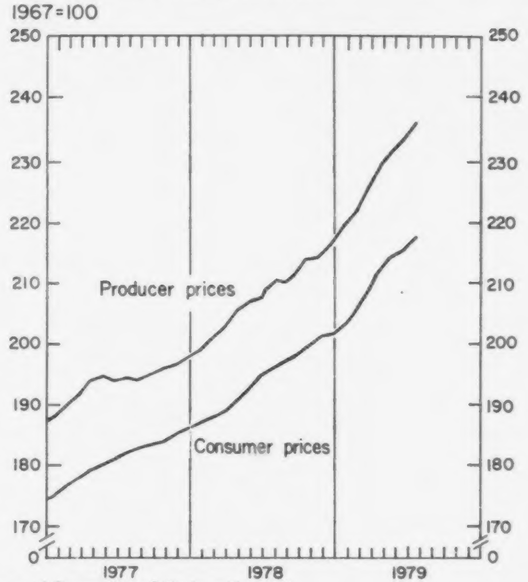
Consumer and Producer Prices



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Price Increases Accelerate

The rate of inflation has accelerated since last December. Consumer prices have risen at more than a 13 percent rate, and producer prices have risen at more than a 14 percent rate. In the preceding year consumer and producer prices rose 9.1 percent and 9.8 percent, respectively. The acceleration in producer prices since spring has centered in prices of industrial commodities. Prices of farm products and processed foods have declined since April, while prices of industrial commodities have jumped upward at nearly a 17 percent rate.

The acceleration in inflation has resulted from an increase in the *relative price* of energy that has been converted into a rapid rise in the *general price level.* As already suggested, the rise in energy prices caused a reduction in aggregate supply; that is, there was an increase in costs at any level of output. To sustain production or to achieve further increases it was necessary for aggregate demand to expand — bringing about a marked rise in the price level. This sequence of events has occurred repeatedly since 1973.

Suppose for the moment that the increases in aggregate demand have resulted from explicit economic policy decisions. Aside from accelerated inflation, what have these measures achieved? First, consider their impact domestically. The rise in *general* prices serves to mask the change in *relative* prices. There is a view that it is less painful, at least in the short run, for individuals and firms to accept increases in wages or prices that are smaller

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than those received by others than it is to accept explicit decreases. To the extent that the illusion of improvement persists, the economy's output of goods and services can be sustained or expanded. At length, the change in the distribution of real income is accomplished in disguise.

Inflation also has an important impact on the US economy's international position. It makes the US economy a less attractive market in which foreigners may purchase goods and services, thereby slowing the growth in US exports. By the same token, domestic inflation encourages the growth in US imports. The nation's worsening trade position has contributed to the persistent deterioration in the value of the dollar compared with foreign currencies.

Just as domestic inflation has served to camouflage the redistribution of real income in the US, it has obscured the international redistribution of income. OPEC's increases in oil prices have expanded the flow of nominal income to oil-exporting nations. In order for an oil-exporting nation to convert increases in *nominal income* into increases in *real income,* that nation must import real goods and services. To the extent that oil-importing nations — such as the US — are experiencing inflation, they deprive oil exporters from gains in real income.

Economic Policy Tightens

It would be astutely Machiavellian for policymakers to induce inflationary increases in demand in order to disguise, distort, and frustrate the redistribution of real income flowing from increases in the relative price of energy. Even so, it is unlikely that these policy moves have been deliberate.

Expansive monetary actions are a case in point. Their stimulative character runs contrary to the stated policy of the Federal Reserve System. Since March the money supply has expanded at more than a 10 percent annual rate. In the preceding year it rose 4.6 percent. Thus, monetary growth has accelerated along with the acceleration in inflation.

At the same time, it is popularly believed that monetary policy has tightened. This belief stems from the notion that a rise in interest rates is importantly influenced by the Federal Reserve. Although it may be well within the Fed's awesome power to change the level of interest rates, outside observers would seldom be wrong if they regarded all interest rate changes as the result of shifts in private demand and supply factors. In the present setting, interest rate movements are probably dominated by swings in the rate of inflation — or expectations of future swings.

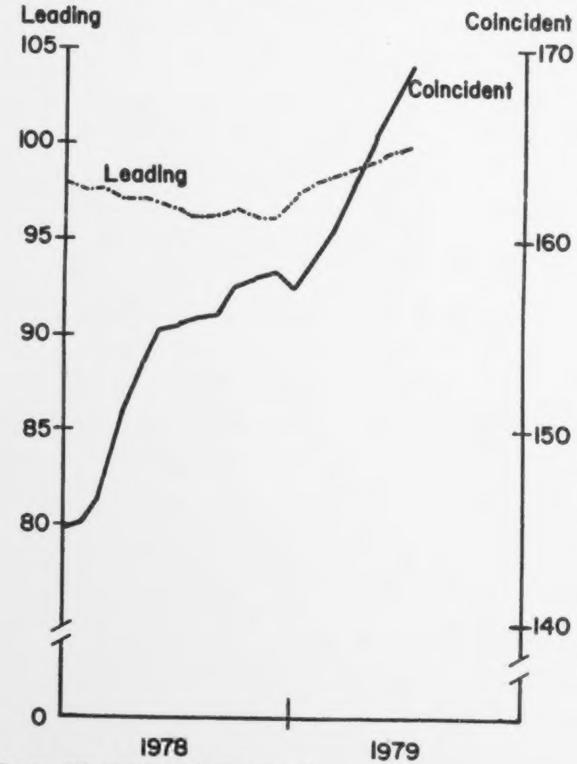
The Federal Reserve tends most often to accommodate shifts in credit demands. Thus, as interest rates rise, money supply growth accelerates; as rates fall, monetary growth slows. Recent and current interest rate increases do not represent restrictive monetary actions. They reflect accelerating inflation. The real rate of interest — that is, interest rates adjusted for expected inflation — has probably fallen in recent months.

Notwithstanding the ambiguous stance of the monetary authorities, overall economic policy actions have probably fostered a restrictive environment. In particular, the growth in government expenditures has been cut back sharply. So far this year government purchases of goods and services have risen at only a 5.5 percent annual rate. By comparison, they rose nearly 10 percent in 1978, and 11.5 percent in 1977. Real purchases (inflation-adjusted purchases) by government have actually declined.

The near-term economic outlook will be dominated by the following features: further rapid increases in prices; higher interest rates; declining real output; slower employment growth; and rising unemployment.

WILLIAM R. BRYAN

Illinois Economic Indicators



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Our two indicators scored small gains in July as some components increased. Average weekly hours rose by a fairly large amount on a seasonally adjusted basis. Building permits have declined since June. After substantial declines in the last few months, weekly earnings increased slightly in July when inflation is taken into consideration. Employees in the agricultural sector increased in July. Although two indicators made some advances in July, the declines in some components suggest that the state economy may have potential weakness. Data for retail sales and the layoff rate were not available at press time.

CHUN-SANG CHEUNG

Local Illinois Developments

Food stamp usage in Illinois outpaced the national experience. While food stamp payments grew nationally at a 17.2 percent average annual rate from 1972 to 1977, payments to Illinois residents increased at a 20.8 percent rate.

The payment of food stamps represents a public assistance type of transfer payment. Total transfer payments to Illinois residents grew in proportion to the national average. Both increased at a 14.9 percent average annual rate between 1972 and 1977. Transfer payments in general serve to redistribute income, thereby shifting spending decisions within an economy. Food stamp payments enable dollars to be freed that would otherwise be going for food purchases, thus enabling the recipient to purchase alternative goods and services. Other major categories of transfer payments include social security benefits, unemployment insurance, medicare and medicaid, and federal pensions.

Examining the growth of food stamp payments or transfer payments in general, two elements can be identified as having substantial impact on their growth — inflation and unemployment. These two factors have led to more persons becoming eligible for food stamps. Thus it is primarily increased numbers rather than increased benefits which have resulted in the rapid rise in these payments.

Food prices have not increased nearly as rapidly as the growth of food stamp payments. Even so, the 9.2 percent average increase in food prices was a major element in payment increases during the 1972–77 period. Actual food stamp payments have been much larger with greater volatility than the steadily rising price of food. This is due primarily to the effects of unemployment. Tracing the movement of food stamp payments mirrors the movement in the unemployment rate over the 1972–77 period. Food stamp payments showed their most rapid rates of increase during the recession in 1974–75, increasing at over a 41 percent average annual rate. During that same period unemployment rose from an average 4.9 percent in 1973 to over an average 8.5 percent rate during 1975. These large jumps in both unemployment and food stamp payments were followed by a leveling-off period during 1976, with both showing declines during 1977. Unemployment dropped to an average 7.0 percent level during 1977 as food stamp payments dropped some 4.5 percent between 1976–77.

An examination of the distribution of food stamp payments by county in Illinois shows Kane County experienced the largest growth in payments during the 1972–77 period, with a 36.8 percent average annual rate of increase. Even with this rapid growth in payments Kane County still has a lower proportion of food stamp usage than its proportional makeup of the state population.

The effects of higher prices and higher levels of unemployment did not appear to affect either Crawford County's or Marshall County's demand for food stamps as both actually registered drops in food stamp usage between 1972–77. Growth rates of some of the other counties include a steep 30.5 percent average annual increase in Sangamon County and a high 23.1 percent average annual rate in Cook County. Peoria and Champaign counties showed much smaller rates of increase with 8.4 percent and 9.9 percent average annual increases respectively.

As might be expected, the greatest part of the food stamp payments to Illinois goes to the residents of Cook County. What is surprising is the level at which the stamps are used in that county. Cook County accounts for a little over 47 percent of the state's population, but on average receives over 71 percent of the total food stamp payments to Illinois. This figure is more interesting when looking at the relative income of the county. Cook County accounts for 57 percent of the state's personal income. Only one other county in Illinois uses proportionately more food stamps compared with the population that could be classified as wealthy by looking at personal income. This is Du Page County, which could be considered the wealthiest county in the State with personal income of its residents accounting for 4.2 percent of the state figure but with a population making up just .5 percent of the State. Even with this large personal income figure Du Page County uses close to .6 percent of all food stamps in Illinois.

Aside from Cook and Du Page counties only 6 of Illinois's 102 counties use more than their populational proportion in food stamps. These counties include Alexander, Gallatin, Hardin, Kankakee, Pope, Pulaski, and St. Clair. The high percentage use of food stamps in these counties is more easily understood in that all of these counties have proportionally low personal incomes. For example, St. Clair County uses an average 4.8 percent of all food stamp payments in Illinois while having a population that makes up just 2.5 percent of the total. However, the personal income generated within St. Clair County accounts for only 1.5 percent of the state's total.

Other counties such as Henry and Marshall also have personal incomes well below their proportional makeup of the state's population, but still manage to keep food stamp usage quite low. Henry County accounts for .5 percent of the state's population with only .29 percent of the state's personal income. It accounts for just .1 percent of total Illinois food stamp payments. Marshall County's lack of dependence on food stamps is even more evident as it has a proportional population makeup six times greater than its proportional usage of food stamps. Differing costs of living, poorly distributed incomes, and attitudes toward accepting public assistance, could all be identified as factors causing such wide variations in food stamp usage among counties.

THOMAS BRYAN

	Food stamp payments (bonus value) (Thousands of dollars)						Percent of state food stamp use 1972-77	Percent of state population 1972-77	Percent of state income 1972-77
	1972	1973	1974	1975	1976	1977			
Illinois	108,567	137,187	204,097	276,127	292,540	279,509	100.00	100.00	100.00
Adams	401	454	672	932	918	972	.34	.62	.53
Alexander	267	344	475	526	536	519	.21	.11	.06
Bond	116	108	185	205	179	187	.08	.13	.06
Boone	101	65	101	336	260	233	.08	.24	.27
Brown	29	32	42	56	49	41	.02	.05	.02
Bureau	102	98	165	188	176	184	.07	.33	.22
Calhoun	41	44	68	74	70	73	.03	.05	.02
Carroll	47	46	74	133	135	143	.05	.17	.08
Cass	60	72	123	144	151	167	.06	.13	.09
Champaign	1,263	1,678	2,568	2,545	2,248	2,030	.95	1.50	1.26
Christian	135	263	457	496	482	508	.18	.33	.25
Clark	113	104	163	218	161	149	.07	.15	.08
Clay	125	104	176	212	196	194	.08	.13	.07
Clinton	111	126	181	264	227	206	.09	.27	.14
Coles	231	242	406	531	520	516	.19	.44	.35
Cook	70,840	96,915	143,778	196,725	214,996	200,401	71.16	47.25	56.95
Crawford	251	126	192	275	203	215	.10	.18	.15
Cumberland	89	79	137	129	107	114	.05	.09	.03
De Kalb	383	266	625	818	532	592	.25	.64	.43
De Witt	54	53	100	131	131	115	.05	.15	.11
Douglas	100	111	157	167	143	125	.06	.17	.19
Du Page	847	656	1,035	2,542	2,541	2,414	.58	.51	4.23
Edgar	139	109	163	202	205	196	.08	.19	.15
Edwards	45	47	63	59	62	58	.03	.07	.05
Effingham	171	142	209	279	225	215	.10	.26	.21
Fayette	123	120	163	208	194	222	.08	.19	.10
Ford	29	62	86	126	120	113	.04	.13	.12
Franklin	293	512	764	875	875	881	.32	.37	.19
Fulton	195	193	281	342	366	450	.14	.38	.26
Gallatin	107	127	213	188	196	184	.08	.07	.05
Greene	184	190	323	390	334	342	.14	.15	.06
Grundy	81	73	115	186	210	184	.07	.25	.22
Hamilton	108	119	152	152	148	153	.06	.08	.03
Hancock	121	120	183	266	247	289	.09	.21	.09
Hardin	89	100	153	215	178	184	.07	.04	.02
Henderson	61	71	101	107	80	84	.04	.08	.03
Henry	141	121	259	225	252	313	.10	.50	.29
Iroquois	94	124	183	281	229	230	.09	.30	.21
Jackson	677	587	821	801	775	795	.34	.50	.37
Jasper	91	70	80	88	71	76	.04	.10	.08
Jefferson	388	398	677	623	658	653	.26	.32	.25
Jersey	148	124	204	227	173	224	.09	.17	.07
Jo Daviess	52	54	95	115	104	81	.04	.20	.08
Johnson	73	70	127	139	148	149	.05	.08	.02
Kane	744	1,031	1,662	3,554	3,579	3,567	1.09	2.42	2.09
Kankakee	866	1,053	1,569	2,393	2,668	2,960	.89	.85	.71
Kendall	45	50	69	165	141	125	.05	.29	.32
Knox	184	224	309	406	386	462	.12	.54	.55
Lake	2,404	1,640	2,032	3,317	3,484	3,508	1.26	3.72	3.37
La Salle	353	303	427	591	687	689	.24	.97	.83
Lawrence	186	201	270	300	284	298	.12	.16	.10
Lee	203	180	184	246	251	252	.10	.32	.24
Livingston	124	118	201	271	270	305	.10	.37	.29
Logan	57	62	136	221	208	227	.07	.27	.25

	Food stamp payments (bonus value) (Thousands of dollars)						Percent of state food stamp use 1972-77	Percent of state population 1972-77	Percent of state income 1972-77
	1972	1973	1974	1975	1976	1977			
McDonough	112	138	354	385	291	269	.12	.35	.21
McHenry	541	417	652	1,093	826	703	.33	1.19	.75
McLean	688	601	987	966	889	923	.30	1.06	.93
Macon	1,008	1,113	1,708	2,109	2,127	2,225	.79	1.14	1.24
Macoupin	299	256	386	533	547	618	.20	.41	.20
Madison	2,499	2,934	4,598	5,859	5,479	5,950	2.11	2.19	1.76
Marion	483	453	615	850	826	826	.31	.37	.26
Marshall	49	38	52	53	44	46	.02	.12	.07
Mason	73	103	183	271	257	222	.08	.17	.10
Massac	210	192	275	327	347	333	.12	.13	.07
Menard	38	33	59	100	92	88	.03	.10	.06
Mercer	96	160	48	114	128	161	.05	.16	.06
Monroe	148	112	179	231	165	145	.08	.17	.07
Montgomery	160	145	226	320	339	407	.12	.27	.20
Morgan	182	203	393	436	463	472	.17	.31	.31
Moultrie	65	54	73	89	95	88	.04	.12	.08
Ogle	228	330	344	560	597	576	.20	.38	.24
Peoria	1,789	1,826	2,062	2,328	2,485	2,676	1.01	1.80	2.07
Perry	131	123	134	214	205	204	.08	.19	.16
Piatt	38	46	102	143	142	135	.05	.14	.11
Pike	186	170	280	344	333	373	.13	.17	.08
Pope	75	85	122	141	117	137	.05	.04	.01
Pulaski	265	305	422	416	426	415	.17	.08	.03
Putnam	18	18	28	30	25	30	.01	.05	.05
Randolph	187	187	254	352	349	345	.13	.30	.22
Richland	65	74	115	204	185	154	.06	.16	.12
Rock Island	832	954	1,369	1,753	2,050	2,215	.71	1.46	1.87
St. Clair	5,833	7,012	10,847	13,309	12,818	12,326	4.79	2.51	1.53
Saline	261	359	497	578	571	555	.22	.24	.13
Sangamon	799	1,110	2,002	2,452	2,737	2,907	.93	1.56	1.61
Schuyler	44	50	67	76	63	56	.03	.07	.03
Scott	34	34	57	50	53	44	.02	.05	.05
Shelby	149	133	201	254	236	202	.09	.21	.09
Stark	30	39	55	43	44	42	.02	.07	.04
Stephenson	127	150	185	574	514	482	.16	.42	.35
Tazewell	518	476	707	700	806	957	.32	1.15	1.36
Union	138	165	227	311	272	283	.11	.15	.10
Vermilion	799	874	1,424	1,517	1,319	1,360	.56	.87	.82
Wabash	97	73	118	109	101	107	.05	.12	.38
Warren	89	91	136	190	176	214	.07	.19	.14
Washington	67	61	90	113	134	141	.05	.14	.07
Wayne	178	178	261	244	232	241	.10	.16	.09
White	238	235	288	307	305	300	.13	.15	.09
Whiteside	231	240	309	597	509	555	.19	.57	.46
Will	1,252	1,491	2,375	3,822	3,936	4,362	1.33	2.72	1.68
Williamson	463	675	967	1,221	1,039	1,036	.42	.47	.31
Winnebago	2,433	2,228	3,026	4,133	3,987	3,941	1.52	2.15	2.21
Woodford	42	62	84	101	94	105	.04	.28	.14

Source: Bureau of Economic Analysis.

1977 Transfer Payments By Major Source (thousands of dollars)

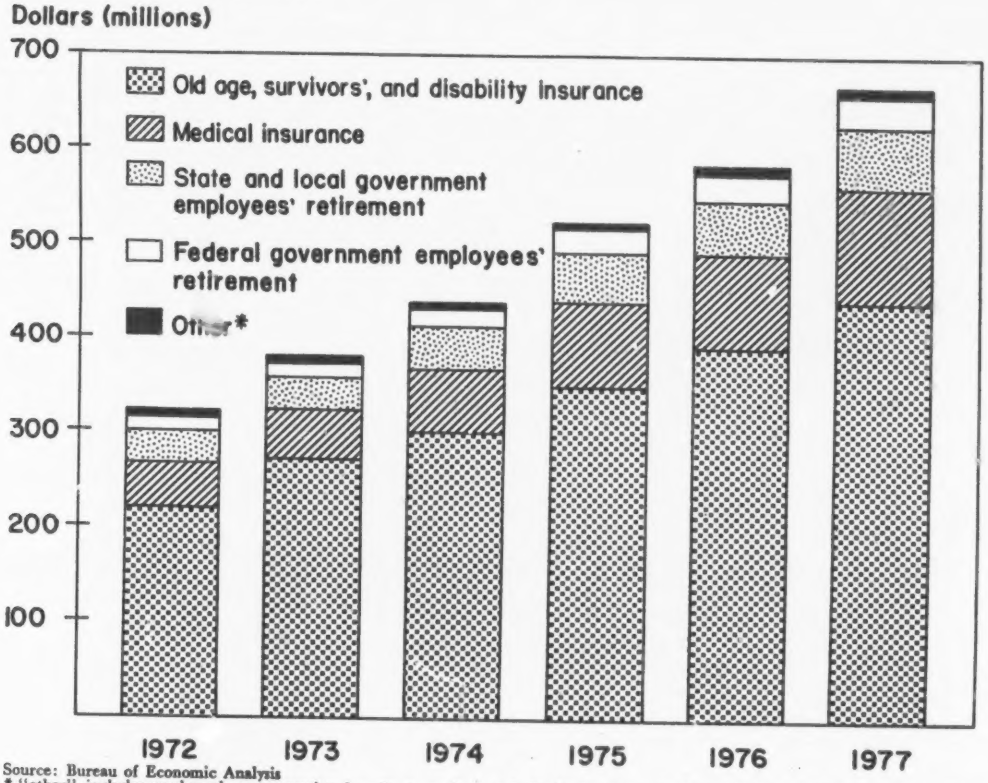
	Total transfer payments	Gov't. payments to individual civilians				Gov't. pay. to ret. mili., vets., and depend.				Payment to nonprofit institutions	Business transfer payments
		Retirement, disability and health insurance	Unemployment insurance	Educational and training assistance payments	Income maintenance payments	Pensions, etc.	Unemployment ins. for vets.	Educ. pay. to vets., depend., and surv.	Gov't. life insurance benefits payments		
US	208,824,000	132,812,200	12,607,000	1,926,800	23,839,000	17,449,000	463,000	3,179,000	982,000	5,505,000	9,631,000
Illinois	10,889,719	6,876,199	978,667	113,664	1,394,697	417,510	22,903	119,012	49,594	323,024	586,875
Adams	73,320	48,984	7,018	782	4,829	4,679	155	807	331	2,024	3,666
Alexander	17,057	9,791	2,176	50	2,957	963	14	71	40	359	629
Bond	15,550	10,300	2,167	289	709	743	28	142	57	423	682
Boone	30,319	12,634	13,391	108	1,007	590	64	333	117	767	1,291
Brown	6,188	4,364	728	23	286	312	7	37	21	161	246
Bureau	37,056	27,252	3,922	149	898	1,375	67	346	156	1,062	1,744
Calhoun	6,444	4,510	675	23	349	384	10	59	24	162	245
Carroll	20,107	15,831	1,166	124	683	650	29	146	68	541	858
Cass	16,066	11,694	1,375	58	862	738	31	156	61	413	668
Champaign	124,341	73,050	9,376	3,423	9,911	12,710	377	1,962	625	4,539	8,268
Christian	42,683	32,724	2,263	158	2,049	1,469	76	394	161	1,074	1,806
Clark	16,186	12,020	889	66	658	1,057	31	157	69	468	760
Clay	16,485	10,970	2,026	60	1,049	1,040	22	116	59	435	698
Clinton	26,277	17,070	3,448	123	885	1,928	69	358	123	874	1,381
Coles	48,074	32,426	3,591	1,838	2,609	2,476	121	624	218	1,457	2,683
Cook	5,606,311	3,348,781	489,310	58,946	1,017,211	154,154	11,030	57,338	24,479	154,230	287,098
Crawford	22,069	16,209	1,349	202	1,018	1,419	36	190	90	583	961
Cumberland	10,164	6,227	1,967	42	411	587	22	111	46	298	448
De Kalb	51,655	34,790	3,892	2,481	1,924	1,613	162	838	287	2,061	3,563
De Witt	15,401	10,883	1,332	68	562	908	36	187	78	489	847
Douglas	15,232	10,517	1,162	80	736	856	36	183	79	575	996
Du Page	355,867	252,661	18,172	3,595	10,559	13,954	976	5,080	2,343	16,117	32,063
Edgar	20,709	14,722	1,249	89	1,250	1,391	34	181	88	628	1,065
Edwards	7,589	5,028	1,142	31	348	383	10	55	26	220	343
Effingham	23,764	16,130	2,066	116	1,312	1,350	43	225	97	821	1,588
Fayette	21,100	14,486	2,280	86	1,160	1,189	34	176	82	607	988
Ford	17,535	12,210	1,599	60	616	1,561	33	167	72	431	776
Franklin	65,655	47,124	7,029	169	4,327	3,249	62	320	168	1,197	[illegible]
Fulton	43,682	33,055	2,259	248	2,350	1,728	79	410	181	1,249	2,096
Gallatin	9,198	5,550	1,498	27	824	687	12	64	30	196	307
Green	17,870	12,196	1,473	68	1,508	1,060	36	191	76	485	766
Grundy	26,038	16,612	4,980	116	704	957	50	262	121	824	1,396
Hamilton	11,724	7,363	2,154	34	733	719	10	56	32	242	378
Hancock	23,010	17,601	838	332	1,147	1,084	46	248	100	638	963
Hardin	6,940	4,362	944	21	752	442	5	24	17	151	219
Henderson	6,710	4,992	219	34	377	339	21	101	39	245	339
Henry	46,689	34,442	3,007	276	1,642	2,102	107	557	229	1,614	2,680
Iroquois	31,784	24,259	1,714	138	1,237	1,302	65	342	133	976	1,598
Jackson	61,947	37,730	7,021	4,079	4,438	3,104	155	800	234	1,568	2,783
Jasper	9,757	7,148	493	45	422	658	21	100	42	320	503
Jefferson	41,413	26,113	5,879	372	3,385	2,433	50	263	132	1,002	1,765
Jersey	15,721	10,249	1,817	78	922	832	41	213	79	559	918
Jo Daviess	18,710	14,320	983	93	512	831	33	168	77	655	1,025
Johnson	11,005	6,622	1,999	36	868	685	17	93	37	256	387
Kane	225,367	151,089	23,300	1,638	15,248	7,000	565	2,937	1,141	7,804	14,473
Kankakee	99,812	63,550	9,250	1,017	13,422	2,998	203	1,054	413	2,780	5,066
Kendall	15,757	10,714	798	129	448	823	62	322	120	916	1,408
Knox	58,097	40,577	5,390	488	2,904	2,633	127	662	278	1,768	3,231
Lake	288,377	181,922	22,734	2,082	18,260	24,874	775	4,027	1,713	11,030	20,716
La Salle	112,008	79,486	12,943	624	3,645	4,305	219	1,136	493	3,149	5,939
Lawrence	19,669	13,980	1,644	71	1,289	1,165	26	135	71	510	767
Lee	34,553	24,846	3,799	415	1,222	985	57	302	143	1,031	1,732
Livingston	34,816	26,338	1,668	162	1,313	1,419	90	462	177	1,154	2,007
Logan	29,573	22,285	1,577	448	1,097	1,252	50	266	140	900	1,540
McDonough	32,512	20,634	3,709	1,479	1,329	1,480	88	448	149	1,155	2,016
McHenry	98,151	69,978	9,032	599	2,668	3,640	243	1,262	520	3,718	6,412
McLean	87,467	57,545	7,107	3,350	4,482	3,658	222	1,155	427	3,420	4,029
Macon	110,213	69,942	10,545	855	10,516	5,438	277	1,444	587	3,650	6,879
Macoupin	56,405	41,299	5,329	335	2,682	2,501	86	455	189	1,328	2,173
Madison	259,678	165,585	27,508	3,748	25,577	12,133	613	3,179	1,244	7,169	12,694
Marion	58,507	40,023	7,669	328	3,393	3,091	91	467	180	1,156	2,083
Marshall	11,917	8,952	761	55	358	539	29	154	59	394	607
Mason	17,594	[illegible]	1,080	77	949	773	24	125	62	545	892
Massac	17,033	[illegible]	2,259	56	1,774	1,182	31	162	68	402	653
Menard	11,401	8,344	918	44	603	518	22	116	44	316	471
Mercer	15,162	11,250	1,084	72	609	623	29	153	63	519	749
Monroe	16,692	11,828	1,632	77	657	816	33	171	78	549	839
Montgomery	36,578	25,659	4,315	135	1,642	1,386	59	298	132	894	1,569
Morgan	37,258	25,049	3,710	535	2,658	1,715	71	371	154	1,035	1,937
Moultrie	13,691	10,351	746	52	604	721	28	141	55	372	612
Ogle	33,399	24,265	1,760	174	2,011	1,163	91	469	178	1,236	2,025
Peoria	185,209	126,073	14,758	1,857	14,081	6,749	460	2,390	940	5,785	11,267
Perry	25,356	17,202	3,472	112	1,160	1,452	40	205	89	610	1,001
Piatt	13,885	10,619	400	65	562	788	26	135	63	467	749
Pike	21,176	15,434	1,295	77	1,491	1,096	43	222	83	552	870
Pope	5,318	3,232	734	16	579	407	7	33	16	119	174
Pulaski	12,562	7,505	1,136	243	2,351	601	9	46	23	267	377
Putnam	5,190	3,660	773	21	102	158	10	60	26	150	227

1977 Transfer Payments By Major Source (thousands of dollars) (continued)

	Total transfer payments	Gov't. payments to individual civilians				Gov't. pay. to ret. mili., vets., and depend.				Payment to nonprofit institutions	Business transfer payments
		Retirement, disability and health insurance	Unemployment insurance	Educational and training assistance payments	Income maintenance payments	Pensions, etc.	Unemployment ins. for vets.	Educ. pay. to vets., depend., and surv.	Gov't life insurance benefits payments		
Randolph	34,387	23,450	4,005	142	1,428	2,151	83	427	150	945	1,584
Richland	16,636	11,394	1,358	245	1,004	997	29	151	63	499	885
Rock Island	151,180	108,649	8,538	1,209	9,947	6,135	377	1,955	780	4,767	8,718
St. Clair	299,734	157,799	27,516	2,648	62,847	22,475	611	3,181	1,261	8,057	13,138
Saline	42,942	29,917	4,862	355	2,978	2,267	46	242	116	785	1,358
Sangamon	186,187	130,813	15,283	1,351	13,002	8,404	338	1,747	755	5,002	9,383
Schuyler	8,549	6,029	858	33	370	509	15	86	35	233	377
Scott	6,073	4,397	517	24	261	315	12	65	24	175	279
Shelby	21,490	15,172	1,763	95	1,060	1,323	45	237	94	672	1,015
Stark	6,689	5,323	53	30	284	345	19	94	35	211	291
Stephenson	41,663	29,319	3,705	342	2,003	1,599	100	520	199	1,373	2,474
Tazewell	94,795	65,234	8,018	520	4,703	3,786	289	1,500	589	3,699	6,376
Union	22,907	13,972	4,182	68	1,802	1,345	33	173	72	483	766
Vermilion	100,646	63,858	12,766	792	7,313	6,120	195	1,019	476	2,911	5,133
Wabash	11,851	8,250	636	189	737	786	24	118	55	394	653
Warren	20,361	14,745	1,209	228	1,302	864	40	204	85	621	1,050
Washington	16,325	11,159	2,273	61	579	915	29	156	54	438	651
Wayne	19,271	12,221	3,090	70	1,201	1,094	31	156	71	498	828
White	20,746	14,533	1,854	69	1,394	1,253	28	143	73	496	892
Whiteside	50,309	35,766	3,456	311	2,915	1,747	122	636	249	1,863	3,204
Will	211,604	130,246	27,315	2,115	17,396	7,049	529	2,756	1,148	8,628	14,178
Williamson	73,358	48,685	10,806	464	4,343	3,950	110	570	238	1,497	2,662
Winnebago	199,328	130,712	15,288	1,394	19,614	7,537	570	2,963	1,117	7,047	12,926
Woodford	20,903	15,846	443	237	792	814	59	298	113	884	1,400

Source: Bureau of Economic Analysis.

Retirement, Disability, and Health Insurance Payments to Illinois Residents, 1972–77



Source: Bureau of Economic Analysis
* "other" includes workmen's compensation benefits to retired and disabled railway workers, black lung payments, and other government disabled and insurance payments.

Comparative Economic Data for Selected Illinois Cities, July 1979

	Building Permits[1] (000)		Electric Power Consumption[2] (000,000 kwh)		Postal Receipts[3] (000)		Employment[4,5] (000)		Estimated Work Force Unemployed (percent)[4,5]	
	July 1979	% change from July 1978	July 1979	% change from July 1978	July 1979	% change from July 1978	July 1979	% change from July 1978	July 1979	July 1978
ILLINOIS	$ 255,005[a]	*+38.6*	3,644.7[a]	*-0.7*	$ 45,274[a]	*+6.4*	4,874.7	*+2.9*	*5.2*	*5.2*
NORTHERN ILLINOIS										
Chicago	$ 148,884	*+38.1*	1,787.8	*-0.6*	$ 34,627	*+6.8*	3,265.0	*+1.0*	*5.7*[d]	*6.0*
Aurora	7,075	*+66.7*	116.3	*-18.5*	616	*+16.4*	38.2	*+1.0*	*5.1*	*5.8*
Elgin	2,064	*-73.5*	95.3	*+5.1*	652	*+9.0*	27.9	*+1.0*	*5.9*	*6.7*
Joliet	1,771	*-18.9*	392.7	*+5.1*	316	*-4.8*	46.8	*+1.0*	*5.4*	*6.1*
Kankakee	579	*+120.1*	73.3[b]	*+7.1*	198	*-15.0*	37.2[d]	*-0.5*	*9.8*[d]	*8.6*
Rock Island-Moline	3,164	*+5.9*	131.9[c]	*-2.9*	1,097	*+19.8*	177.5[d]	*+2.3*	*4.3*[d]	*5.4*
Rockford	11,052	*+189.3*	173.9	*+10.2*	890	*+6.9*	132.5[d]	*+1.9*	*5.6*[d]	*5.4*
CENTRAL ILLINOIS										
Bloomington-Normal	$ 8,684	*+185.7*	52.7	*-7.7*	$ 911	*+1.2*	54.9[d]	*-4.1*	*4.7*[d]	*4.6*
Champaign-Urbana	1,508	*-55.0*	56.3	*-0.7*	580	*-9.5*	74.9[d]	*+6.2*	*5.1*[d]	*5.3*
Danville	855	*+36.1*	46.6	*-0.4*	193	*-9.8*	18.9	*-1.5*	*7.8*	*8.1*
Decatur	2,182	*-81.1*	126.9	*-2.6*	478	*-0.6*	56.5[d]	*-1.5*	*6.8*[d]	*6.6*
Galesburg	5,727	*+235.8*	30.4[b]	*-7.5*	132	*-20.4*	15.5	*-5.4*	*7.6*	*7.3*
Peoria	38,709	*+676.8*	201.1	*+2.8*	1,255	*-6.5*	169.3[d]	*+0.3*	*5.3*[d]	*5.3*
Quincy	1,134	*+200.0*	43.0	*-4.2*	228	*+4.5*	42.9	*-1.3*	*5.6*	*6.9*
Springfield	17,141	*+272.5*	137.0	*-8.6*	2,157	*+16.5*	91.0[d]	*-2.6*	*6.2*[d]	*5.7*
SOUTHERN ILLINOIS										
East St. Louis	$ n.a.	n.a.	26.2	*-19.3*	$ 168	*-0.5*	23.2	*+3.5*	*12.6*	*10.1*
Alton	359	*-29.0*	84.2	*+0.5*	137	*+7.0*	15.7	*+3.2*	*7.8*	*7.2*
Belleville	1,454	*+8.2*	32.2	*-9.2*	358	*+21.7*	20.3	*+3.5*	*5.4*	*4.2*
Carbondale-Murphysboro	2,664	*+22.8*	36.9	*-1.6*	281	*-2.0*	13.5[e]	n.a.	*10.2*[e]	*8.4*

[1] Local sources; data include federal construction projects. [2] Local power companies. [3] Local post office reports; accounting period ending 10 August 1979. [4] Illinois Department of Labor; preliminary. [5] Data for June 1979 compared with June 1978.

[a] Total for cities listed. [b] Includes immediately surrounding territory. [c] Includes East Moline. [d] Data for standard metropolitan statistical area.

[e] Data for Carbondale township.

The World Bank and the International Development Association: Increased Food Production I

ROLAND W. BARTLETT

There has been a more rapid increase in the world's population than in food production. This presents a basic problem. The World Bank and the International Development Association (IDA) have initiated activities in over 80 countries designed to aid in resolving this problem and to improve living standards. There is evidence that the World Bank/IDA projects have been helpful, and offer promise for the future. Food production and incomes have already been increased substantially in several countries where World Bank/IDA projects were initiated several years ago. Examples of this are Cameroon, Upper Volta, and India.

Massive contributions by countries throughout the world are concrete evidence of the respect of these countries for the expertise of the World Bank/IDA personnel in initiating, carrying out, and monitoring their projects. In 1978 the total cost of 236 projects initiated by the World Bank/IDA was $31.9 billion. Loans and credits from the World Bank/IDA in 1978 were $8.4 billion, or only 26 percent of the total. Hence, 74 cents of every dollar invested in these projects in 1978 came from countries where the projects are located or from outside countries. Individual countries contributing to World Bank/IDA projects in low-income countries in 1978 were Australia, Canada, France, Germany, Iran, Italy, Kuwait, Netherlands, Norway, Nova Scotia, Sweden, United Kingdom, and the United States. These contributions were in addition to their investments in the World Bank.

Successful World Bank/IDA Projects

Cameroon has participated in several World Bank/IDA projects. Cameroon, located on the west coast of Africa, is an area larger than California. In 1975, it had a population of 6,398,000 and a gross national product of $290 per person, or slightly under the $325 average for western Africa. Cocoa and rubber are among its agricultural exports.

An IDA project to expand rice production and increase incomes of small farmers was initiated in Cameroon in 1972. This activity has resulted in a large expansion in rice production on 11,000 acres along the Logone River in northern Cameroon by irrigation, flood control, double-cropping, and improved transplanting methods. A new rice mill has been constructed in this area and several roads upgraded. By 1985 rice production in this area alone could meet 40 percent of Cameroon's expected demand. Incomes of some 13,000 small farmers were increased fivefold as a result of this activity. IDA gave a $3.7 million credit, or 49 percent of $7.6 million, the total cost for this project. The other 51 percent or $3.9 million, was contributed by the Cameroon government. Success in the rice project paved the way in 1975 for initiation of a large cocoa project and of a rubber project.

In 1975, the World Bank initiated a project in Cameroon to improve the productivity of 123,000 acres near Yaounde used to produce cocoa. As soon as expanded cocoa production gets underway, incomes of some 32,000 farm families may be increased substantially.

Expertise of the World Bank/IDA in setting up, carrying out, and monitoring its projects appears to be helpful in attracting outside funds. The World Bank is loaning only $6.5 million, or 27 percent of the cocoa project's total cost of $23.8 million. The remaining funds are being provided jointly by the French agencies, Caisse Central de Cooperation Economique and Fonds d'Aide et de Cooperation, and the local Cameroon government. In essence, the French agencies and the Cameroon government are assuming the "risk" costs of this cocoa project, with Cameroon making use of World Bank personnel to ensure wise use of funds.

Under an IDA project begun in 1975, around 15,000 acres in Cameroon will be cleared and planted with high-yielding rubber. Credits of $16.0 million, or 56 percent of its total cost of $28.5 million, were obtained from IDA. The remaining costs were financed jointly by a French agency and the Cameroon government. It is estimated that the estate will have a peak production of 13,000 tons of rubber annually once the new plantings come into full production. Around 3,000 farm families will be provided with improved housing, health, education, and social facilities, as a result of increased income from this project.

World Bank/IDA have extended their activities to projects other than rice, cocoa, and rubber. In 1974, the World Bank made a loan to Cameroon to develop livestock products of 150 private ranches and farms, and of three 50,000-acre ranches. The dreaded tsetse fly will be cleared from 2 million acres included in these ranches and farms.

In 1978, the World Bank made a loan to establish

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a new palm oil estate in Cameroon to meet the rising domestic demand for palm oil and also inaugurated a program for the development of small holdings. In addition to increasing the food supply, each successful project materially improved living standards of those employed in carrying out the project.

The *Upper Volta* has benefited from World Bank/IDA projects. Upper Volta is located in an inland plateau region in West Africa. It is approximately the size of Colorado, having a population of 6,032,000 in 1975 and a GNP of $110 per person. Its GNP was thus only a third of the $325 average for western Africa. Over 90 percent of the people in Upper Volta are subsistence farmers, with cattle and sheep being their principal export.

In 1972 the IDA began what it termed a "new-style" project. This consisted of a series of small-scale actions, including 250 wells dug to provide clean water for domestic use; 650 village warehouses built to store grain; 3,700 acres of land improved through soil and conservation measures; and 240 miles of feeder roads upgraded. These results were obtained under the strong leadership of the Upper Volta Project Authority, the regional development associations, and labor donated for construction activities by local communities. The success of this project has paved the way for several new agricultural projects in Upper Volta since then.

The climate in Upper Volta is extremely dry. Prior to any assistance from IDA, an irrigation project was initiated from a United Nations Special Fund, using water from the Black Volta, the White Volta, and water pumped from underground. The IDA 1972 Upper Volta project was successful in providing well water, building village warehouses, and improving the productivity of the land and building feeder roads.

The success of the 1972 project helped to generate large contributions from outside countries and agencies in funding a $17.2 million IDA agricultural project in 1977 supplementing an IDA credit of $3.6 million and $1.6 million of Upper Volta government funds. The remaining $12 million was provided by Canada, the Arab Development Fund, and the Swiss Technical Cooperation.

This project was directed toward several purposes: to increase the production of cotton and cereals; to initiate simple irrigation systems to increase the production of rice, other grains, and vegetable products; to construct a granary; to build village grain storage facilities; to build a training center for extension workers; to construct feeder roads; and to introduce labor-saving devices to improve the condition of women. It is estimated that 46,500 farm families will benefit from this project.

Cattle production is a major industry in Upper Volta. In 1975, the IDA initiated a study to improve its efficiency by introducing more up-to-date commercial ranching in place of traditional methods. This was to be brought about by establishing a ranch development center and nine group ranches; constructing a livestock market; providing improved veterinary services; and upgrading 456 miles of stock routes. It has been estimated that 330,000 cattle producers will benefit by this project.

Between 1974 and 1978, the World Bank/IDA initiated four agricultural projects in Upper Volta. Bank/IDA loans or credits for these projects were $30 million, or 56 percent of their total cost.

India has benefited from World Bank/IDA programs. India, a member of the British Commonwealth, has been an independent republic since 1951. One-third the size of the United States, in 1975 it had a population of 608,072,000, or nearly three times that of the US. Its GNP in 1975 was $140 per person, or about the same as the $137 average of South Asia.

The foundation for successful World Bank/IDA projects to expand food production and improve living standards in India was laid between 1952 and 1973 by six US land-grant universities and various private foundations. During this period 339 men and women from these universities spent a total of 600 man-years to improve institutions and increase food production in India. Nine land-grant universities were established, built on a research, teaching, and extension program similar to that used by land-grant universities in the US. The American institutions which sponsored the universities in India were the Universities of Illinois, Ohio State, Tennessee, Missouri, Kansas State, and Penn State.

World Bank/IDA projects have also resulted in increased food production. Major attention has been centered on providing improved farm credit, getting more water for crops, improving seed and cropping practices, building grain storage facilities, upgrading roads, and training people in each locality to use practices to improve their standard of living.

Increased availability of farm credit is essential for most needed changes. More water is probably most important in increasing food production. Machinery is necessary to dig wells, electric pumps are necessary to pump underground water, and lining of irrigation ditches is often necessary to conserve water. In some areas a new dam is needed to conserve water between seasons.

To prevent famine, village storage facilities are necessary to store grain from good years to bad years. Upgrading of roads is vital to prevent starvation in remote areas. Some projects help to improve the diet by expanding the production of fish, milk, and fruit.

Between 1970 and 1978, the World Bank/IDA initiated 46 agricultural projects for increasing food production and improving living standards in India. The total cost for these projects was $3.6 billion; the Indian government contributed $1.7 billion and the World Bank/IDA $1.9 billion, or 53%.

Partially reflecting these projects, in 1976 and 1977, the growth in food production in India was greater than the growth in birthrate. High food production in both years resulted in part from favorable monsoons. Also between 1955 and 1974 there was a 17 percent decline in the birthrate, partly because of birth control programs of Prime Minister Gandhi.

In this article, attention has been directed toward World Bank/AID assistance to three specific countries. Another approach to discussing the operations of these agencies is to concentrate on the types of assistance they

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offer. In a subsequent issue there will be a presentation of assistance geared toward transportation systems, power projects, industrialization, water and sewage systems, services, education, and nutrition.

1977 Income and Employment Data Available

Detailed BEA income and employment data are available for each of the 102 counties and 10 SMSAs of Illinois for 1971 through 1977. A charge of $20 will be made for the entire set to cover xeroxing and handling costs. A minimum charge of $2 will be made for individual county requests totaling 3 counties or less, and $1 per county for additional counties requested. A charge of $12 will be made for the 1977 transfer payment data for the 102 Illinois counties. Those interested in obtaining the data may write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois, 61801. Please make check payable to the University of Illinois.

Illinois Business Indexes

Item	July 1979	June 1979	May 1979	April 1979	July 1978
Leading indicator (1969=100)	99.7	99.1	98.7	98.4	96.5
Coincident indicator (1969=100)	169.1	167.1	165.4	162.9	155.4
Employment-manufacturing (in thousands)[1]	1,243.5	1,254.3	1,244.7	1,245.9	1,241.2
Average weekly hours-manufacturing[1]	40.5	41.0	40.6	39.4	39.3
Weekly earnings-manufacturing[1]	$299.6	$298.7	$293.3	$281.1	$267.1
Layoff rate-Chicago[1]	n.a.	0.5	0.5	0.4	0.2
Ordinary life insurance sales (in millions)[2]	$1,476	$1,476	$1,548	$1,462	$1,169
Retail sales (in millions)[4]	n.a.	$3,815	$3,886	$3,861	$3,601
Coal production (in thousands)[5]	3,661	5,600	5,581	4,947	4,417
Petroleum production (in thousands)[6]	1,880	1,825	1,945	1,846	2,042
Vendor performance (percent)	60	79	76	76	56
Building permits (in thousands)[4]					
Residential housing units	3.74	5.47	6.10	4.30	6.22
Value of residential housing	$[illegible]62,921	$234,120	$240,011	$178,204	$237,077
Value of nonresidential housing					
Industrial buildings	$55,019	$44,102	$58,435	$35,534	$32,865
Offices, banks, and professional buildings	$57,941	$59,636	$51,624	$41,346	$11,465
Stores and other mercantile buildings	$36,932	$30,89[illegible]	$43,665	$31,985	$20,[illegible]96
Other	$98,707	$38,39[illegible]	$61,768	$36,954	$24,462
Consumer price index[3]					
North Central US	n.a.	117.7	n.a.	115.0	191.4
Chicago	217.4	213.5	210.1	208.7	n.a.
North Central/population more than 4,000,000	n.a.	118.2	n.a.	115.7	n.a.
North Central/population 385,000 to 1,250,000	n.a.	118.0	n.a.	115.[illegible]	n.a.
North Central/population 75,000 to 385,000	n.a.	116.8	n.a.	114.0	n.a.
North Central/population less than 75,000	n.a.	116.6	n.a.	114.1	n.a.
	1979:I	1978:IV	1978:III	1978:II	1978:I
Personal income (in millions)	104,625	101,770	99,795	97,371	94,325

[1] Ill. Dept. of Labor. [2] Life Ins. Agcy. Manag. [3] U.S. Bureau of Labor Statistics. [4] U.S. Dept. of Commerce. [5] Ill. Dept. of Mines. [6] Ill. Geol. Survey.

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Federal Reserve Action and Market Reaction

The Federal Reserve has announced two significant changes in monetary arrangements. One, reserve requirements have been extended on certain bank liabilities that were previously exempt from reserve requirements. Two, the Federal Reserve has shifted its attention to movements in monetary aggregates as a gauge for the short-term effects of monetary policy. In addition to these important changes, the Fed announced a full percentage increase in the discount rate.

Financial markets have made dramatic adjustments to the Federal Reserve actions. Interest rates have jumped sharply, while the stock market has sagged. Effects on the economy will not be discernible for some time to come. However, in terms of intention this much is clear. Monetary policy has tightened. The test for the monetarists may be at hand.

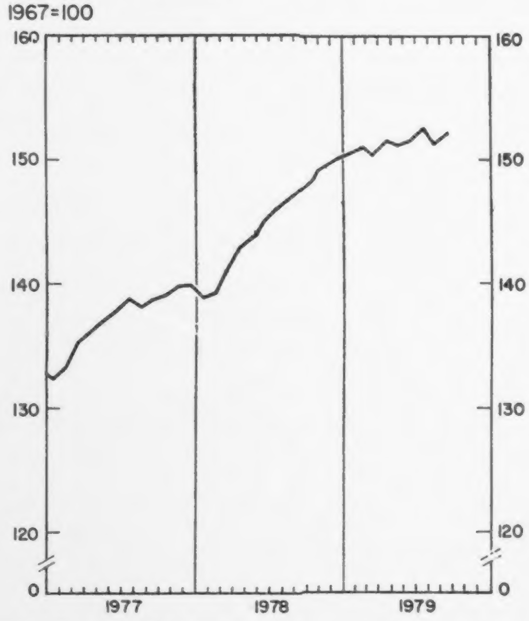
Changes in Federal Reserve Rules

After three months on the job, Paul A. Volcker, the newly-appointed Chairman of the Board of Governors of the Federal Reserve System, has announced an important series of changes.

First, the discount rate was increased by a full percentage — from 11 percent to 12 percent. The discount rate is the rate of interest charged by Federal Reserve Banks for borrowing by member banks. The chief impact of this action has been on expectations of market participants, businessmen, and others who evaluate economic policy measures. The discount rate increase does not represent a significant cost increase to banks. Member bank borrowing totaled just over $1.5 billion in mid-October — little more than one-tenth of 1 percent of total bank credit. Indeed, a relatively small number of the 14,000 banks throughout the nation ever borrow from the Federal Reserve.

A second action was of substantially greater significance. Reserve requirements have been extended to include Eurodollar and federal funds borrowing by member banks from banking institutions that are not members of the Federal Reserve System. For each $100 of such borrowing a bank must hold an additional $8 in its deposit account at its Federal Reserve Bank. The broad-

Industrial Production



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ening of reserve requirements to include Eurodollar and federal funds borrowing has two consequences. One, there is an immediate and substantial increase in the cost of such borrowing. For example, suppose the cost of borrowing prior to reserve requirements were 12 percent. The imposition of an 8 percent reserve requirement raises the effective cost of borrowing to just over 13 percent. Two, and fundamentally more important, by making Eurodollar and federal funds borrowing substantially subject to reserve requirements the Federal Reserve strengthens its ability to control bank liabilities.

The chief monetary effect of reserve requirements is to set an outer limit on the size of bank liabilities. Suppose, for example, that the reserve requirement on bank deposits and borrowings is 8 percent; also suppose that total bank reserves are $50 billion. This would mean that total bank liabilities could reach a maximum of $625 billion (.08 × $50 billion = $625 billion). It also means that when the Federal Reserve expands bank reserves by $1 billion, total bank deposits and borrowing can rise by $12.5 billion.

There is another side to the monetary coin. By limiting the growth of bank liabilities, the Federal Reserve controls the growth in bank credit. Thus, by extending reserve requirements to apply to Eurodollar and federal funds borrowing the Federal Reserve strengthens its control over the volume of bank lending.

The remaining link in strengthening the monetary management process was for the Federal Reserve to reinforce its control over bank reserves. This link was potentially strengthened when Volcker announced that monetary actions would henceforth be geared toward achieving target growth rates in so-called monetary aggregates. Heretofore, short-term Fed operations were directed toward achieving a level of money market interest rates (for example, the interest rate on federal funds borrowing), or toward maintaining rates within a narrow range.

The Federal Reserve pursues its objectives by buying and selling government securities. These purchases and sales are referred to as "open market operations." If the Fed wishes to resist market pressures serving to drive interest rates higher it must purchase government securities. It buys on the open market. By purchasing, the Federal Reserve adds to bank reserves. Conversely, in order to prevent interest rates from falling, the Federal Reserve engages in open market sales, thereby reducing bank reserves.

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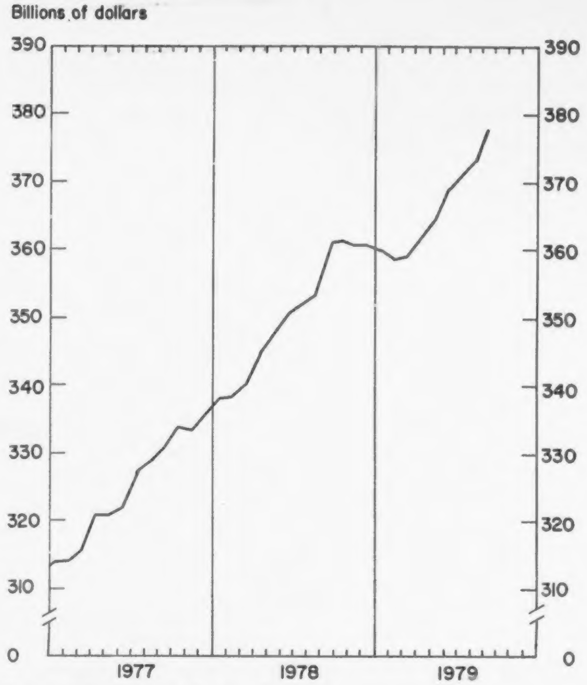
Money Supply



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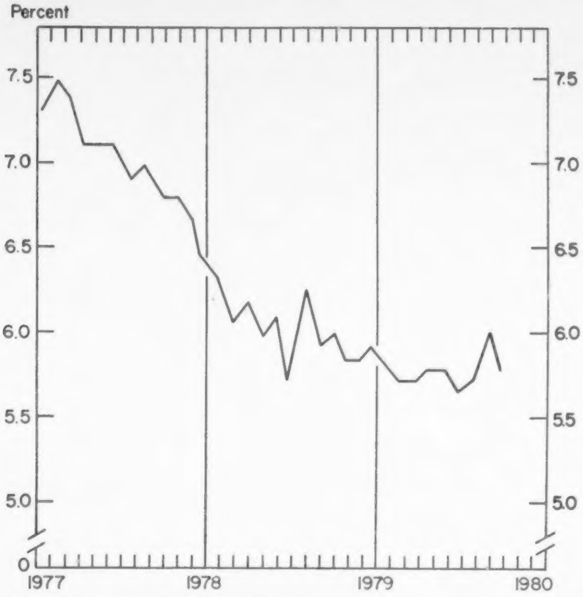
By specifying this subtle change in its operating strategy, the Federal Reserve may have embarked on a bold new course. If the Fed sets its open market operations to achieve a bank reserves target, it must relinquish control over interest rates. Thus, interest rates move to whatever level the market sets. When the Fed controlled interest rate movements, it relinquished control over bank reserves. That is, open operations were whatever was necessary to achieve its interest rate targets.

Market Response to Fed Changes

The announcement of new Federal Reserve operating procedures sent reverberations throughout financial markets. During the first week following the policy actions, the Dow Jones industrial average fell nearly 60 points, creating about $55 billion in stock losses. Such a response may suggest that investors were frightened by the prospective adverse impact on the economy of these monetary moves; alternatively, the initial stock market response may be a short-term reaction by those adversely affected by a sharp jump in interest rates. Certainly, rising interest rates increase the costs to those whose market position is significantly financed by debt.

Short-term interest rates have risen dramatically since the Fed policy shift. The prime rate, the rate of interest charged by banks to their most credit-worthy customers, jumped by one-and-one-half percentage points — reach-

Unemployment Rate



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ing 15 percent in late October. Yields on short-term commercial paper and Treasury bills have also risen more than 150 basis points. (For example, a rise from 11 percent to 12 percent is referred to as a 100 basis points increase.)

Longer-term securities have also experienced an important increase in yields. Yields on United States Treasury securities maturing in 3–5 years rose from just over 9.5 percent in late September to about 10.6 percent in late October. Long-term US Treasury securities yields have risen about 75 basis points. Holders of US Treasury securities (or holders of many bonds issued by corporations) receive semiannual interest payments — in an amount determined at the time any particular issue was initially sold by the Treasury to the public. The size of the semiannual payments does not change. Instead, as market interest rates rise, there are declines in the prices of already outstanding securities. Thus, good news to new investors is sour medicine to investors who may have been holding securities for several years.

Monetary Effects of Fed Changes

It is too early to determine whether the pace of monetary expansion has slowed. In fact, the Federal Reserve actions were not fully implemented until mid-November.

But the background against which change may be judged is clear. From April to mid-October, the narrow money supply (M_1) expanded at more than an 11 percent annual rate. The broad money supply (M_2), which includes net time deposits in addition to M_1, rose at a 12.5 percent rate. Over this same period, business loans at large banks exploded at a 26.6 percent annual rate.

These past rates of expansion of money and credit are extremely rapid. At the same time, the financial system has been extremely inventive in devising techniques by which medium-to-large investors can place their funds into interest-earning assets and, at the same time, maintain ready access to liquidity. Certain money market mutual funds and municipal bond funds are examples of such financial innovations. Thus, while the traditional money supply has been expanding rapidly, its substitutes have also grown at an extraordinary pace.

By the time this piece will have gone to press we will have accumulated several weeks' monetary growth experience. Hopefully, a slowdown will be in evidence.

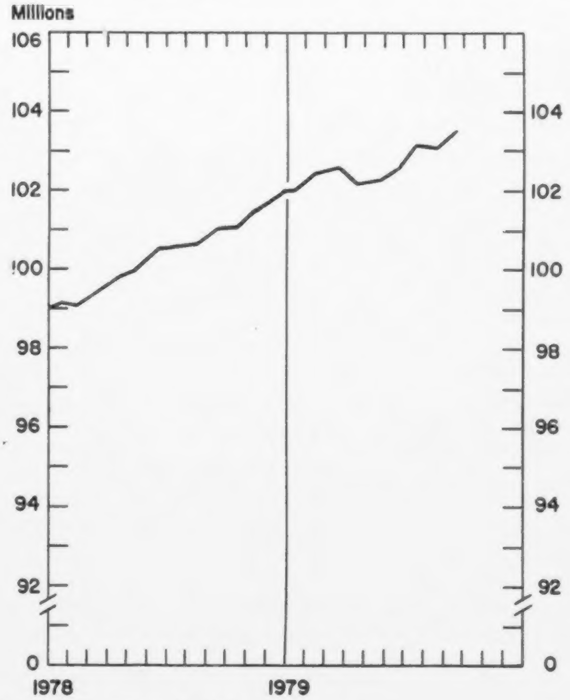
Monetary Change and the Economy

An extended period of time will be required before the economy will show the effects of the recent monetary change. Certainly, the change was introduced with as much fanfare as can be imagined. Moreover, as indicated, the aftershock on financial markets has been dramatic. In short, the seeds have been sown for a pronounced change in expectations.

For years, monetarists have advocated the type of stance Volcker has taken. The test of monetarist propositions may be at hand. The test, though proposed chiefly by academics, is not taken by academics. Instead, the consequences fall on the population at large — for good or for ill.

WILLIAM R. BRYAN

Civilian Labor Force



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A Description of the Primary Wood-Using Industries in Southern Illinois

The primary wood-using industries of southern Illinois are those that purchase raw forest products. These industries produce lumber, veneer, timbers, cooperage, and dimension stock. The products of the primary industries are frequently used by other firms in the production of finished or secondary forest products such as furniture, wall paneling, packaging materials, and so on.

The data contained in this article were obtained by in-depth personal interviews. All known industries were included in the study.

In 1978, there were 37 primary wood-using firms in southern Illinois. Thirty-two firms were sawmills. In addition, there were two chip mills, a veneer plant, a handle mill, a firewood-processing plant, and a log home assembly plant.

In comparison 30 years ago there were approximately 200 sawmills, 9 container veneer mills, 4 box mills, 2 handle plants, and 4 charcoal plants (USDA Forest Service, Paper 123).

More than half of the firms in 1978 had been in operation under present ownership less than 10 years. This was the first year of operation for one-fifth of the plants. The oldest firm had been in operation 52 years. Two-thirds of the plants, in their first year of operation, began as "new" firms as compared with being purchased from prior owners or having been moved from another location.

Most of the firms were individual ownerships or partnerships. Four firms were part of larger wood-using corporations that were headquartered in surrounding states.

Capital investment varied from less than $10,000 to more than $2 million. Eighty percent of the firms had an original capital investment of less than $250,000, with nearly a third less than $50,000. The size of land area required for the plant and log yard was relatively small. All but one of the plants occupied less than 30 acres, with three-fourths using 10 or fewer acres.

Nearly two-thirds of the firms purchased less than 500,000 board feet of roundwood. Thirty percent of the firms purchased more than 1.5 million board feet. The primary wood-using industry in southern Illinois purchased approximately 45 million board feet of roundwood in 1978. The average purchase volume was slightly more than 1 million board feet. The total volume purchased in 1978 was the same as in 1947.

The firms generally were somewhat selective in the species of timber purchased. Only 12 firms bought both pine and hardwoods. One firm, the log home assembly plant, purchased only pine. The most popular hardwoods were oaks. Two sawmills, producing specific dimension stock (for handles and snow skis), specialized in hickory. Ash and pin oak were also singled out for selective purchase. It was of interest to find a few firms rejecting cottonwood sawlogs, although the veneer mill specifically procured cottonwood veneer logs.

The major source of roundwood was from private ownerships, with three-fourths of the firms procuring all or a portion of their timber supply from private lands. Roundwood delivered by loggers FOB at the mill served as a timber source for half of the firms. Only five firms obtained timber from federal lands, with three of these plants obtaining less than one-fourth of their total supplies via federal sales. Four firms obtained a portion of their roundwood from company lands.

Two-thirds of the firms procured most of their roundwood within the resident county. In a study of the timber buyer in Illinois, it was found that more than half of the timber buyers traveled less than 50 miles, one way, to purchase stumpage.

Three-fourths of the firms purchasing stumpage did all of their own logging, and 16 percent logged a portion of their stumpage purchases. The remaining firms subcontracted the logging of their stumpage purchases. This latter practice is becoming more popular with increases in (1) the costs of workmen's compensation and (2) government regulations.

More than two-thirds of the plants resold some of the roundwood purchases, especially veneer logs and specialty sawlogs. The volume resold varied from 3 percent to 33 percent. However, most firms sold less than 10 percent of their total timber purchases. More than two-thirds of the firms experience a slack procurement period during the winter season when the weather is very cold and wet conditions exist.

When asked "How have your procurement practices changed during the past five years?" the most frequent change given was the foregoing observation that firms were subcontracting their logging and/or purchasing more roundwood FOB at the mill. The second most frequent reply was the yarding of veneer logs and specialty sawlogs for reselling. A fourth of the plants replied that the available timber supplies were becoming smaller in both volume and size. However, one-fourth of the firms planned expansion of the volume of timber purchases.

Two final changes taking place in procurement practices were (1) less residue was being left in the woods due to the increasing demands for wood and firewood; and (2) there were fewer "gypo" loggers because sawmills can pay higher prices by reselling logs to veneer and export buyers.

The most frequent products produced by southern Illinois's primary wood-using industry were railroad ties, rough lumber, pallets, and mine timbers including ties, header boards, and matts. A few firms produced graded lumber, mill blocking, wood chips, and firewood. Specialty products included handle blanks, wood reels, hickory ski billets, veneer lumber, and log homes.

Nearly a third of the plants were limited in daily capacity by the scale and/or age of their equipment. Four firms indicated a shortage in the quantity and quality of available labor as a limiting factor to increased production. When asked "What do you consider the *greatest change* confronting your plant and what do you consider the greatest challenge confronting your industry during the next several years?" half of the firm spokesmen said a shortage of adequate (quantity and quality) timber supplies. Firm spokesmen also listed one or more of the following: (1) RARE II, proposed US Forest

Service wilderness areas; (2) federal and state regulations; (3) demand for products dependent upon an uncertain mining industry; and (4) inflation.

The market outlets used by the firms varied by product. Half of the plants marketed part or all of their products through wholesalers. Railroad ties and lumber were the products most often sold to wholesalers. One-half of the firms sold a portion of their products directly to customers and/or manufacturers, especially pallets and mine timbers. Retail sales were made by less than 5 percent of the plants.

More than 90 percent of the firms, not tied to parent firms, credit "word of mouth" as their major source of customers. Eighty percent relied totally on "word of mouth." Other means used to obtain customers included long-standing contracts, buyers, brokers, advertising, and their own salesmen.

Excluding the firms tied to parent firms, and the two specialty mills, the following market areas were found to exist. (1) Firms producing railroad ties and mine timbers sold their product within southern Illinois (generally resident and neighboring county). (2) More than three-fourths of the pallets were sold in the Chicago area. (3) Lumber was marketed in a 3- to 4-state area.

When asked, "What changes do you anticipate in your marketing practices during the next two years?" two firms' spokesmen indicated their firm planned to expand the variety of products produced through "new" product sales. The small number of responses suggests that the primary wood-using industry in southern Illinois plans no major expansion; but, on the other hand, does not plan major reductions in production.

The primary wood-using industry in southern Illinois in 1978 employed approximately 400 full-time people. The estimated annual payroll was more than $4.5 million. Seventy percent of the firms employed less than 10 full-time employees. Only 10 percent of the firms had more than 30 employees. Over the past five years the number of people employed by the primary wood-using industry in southern Illinois has remained relatively stable.

All but two firms utilized fine and coarse residue. However, only 40 percent of the plants utilized bark residue. The firms generally gave away or sold coarse residue for household fuel and/or the manufacture of fiber products. Thirty of the firms sold coarse residue to the pulp industry. The fine residue was generally given away or sold for mulch, livestock bedding, and so on. Only one firm used residue as a source of energy for operational purposes, other than burning for heat.

It is estimated that approximately 36,000 tons of fine residue and 54,000 tons of coarse residue resulted from the production of the primary wood-using firms in southern Illinois during 1978.

The following conclusions are warranted by the study findings: (1) The primary wood-using industries have a significant financial impact on the economy of southern Illinois; (2) The industry has been relatively stable the past 30 years, relative to raw material purchases, but the number of firms has declined; (3) The type of products manufactured by the industry generally utilizes relatively low-quality timber, with the veneer quality roundwood being resold to firms outside of southern Illinois; and (4) The supply of timber in southern Illinois could support an enlarged industry.

DWIGHT R. MC CURDY*

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Illinois Economic Indicators

The Bureau of Economic and Business Research has broadened the coverage of the leading indicator to include the effect of vendor performance. For this reason, the series has been revised for the period of November 1978 to the present. The leading indicator is now based on the following series: layoff rate, new housing starts, weekly hours, and vendor performance.

In the last few months the underlying series have behaved very well given the widespread view that a recession is on the way. Average weekly hours have actually increased on a seasonally adjusted basis from 39.5 hours per week in January to 41.1 in the most recent period. The layoff rate reached its lowest point in 10 years in September 1978 at 0.2 percent and remains now at 0.4 percent, which by comparison even with past periods of prosperity is very low. Housing starts are substantially lower than a year or two years ago, and are the only negative element in the index. We expect that this will worsen in the next few months.

The new element in the index, vendor performance, is at a relatively high level, having dropped a mere 10 percent from a year ago. In January 1975 — a previous slow period — the index was 37 percent below its present level. Overall the index shows the leading elements of the Illinois economy to be performing well.

CHUN-SANG CHEUNG

Illinois Economic Indicators

Month	Leading Indicator	Coincident Indicator
Jan. 1979	94.2	144.3
Feb. 1979	94.2	142.9
Mar. 1979	94.0	147.5
Apr. 1979	93.8	154.5
May 1979	93.6	159.7
June 1979	93.8	160.9
July 1979	94.3	161.5
Aug. 1979	94.6	161.1

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Local Illinois Developments

The Downstate Teachers' Retirement System has in recent years shown signs of increasing financial soundness, despite demographic factors which are currently working their way through the state's school system.

Of the five major public pension systems, the Downstate Teachers' Retirement is by far the largest. At the end of fiscal 1978 this system accounted for over 55 percent of the total assets of all the state-supported pension systems. The other major pension systems, which are supported in part by appropriations from state funds, include the State Employees' Retirement System, the State Universities Retirement System, the Judges' Retirement System, and the other member of the State Teachers' Retirement System, the Chicago Teachers' Pension and Retirement System.

Under the contributing method of financing state pension funds, contributions to the system are received from the employee and the employer (the State of Illinois). Employees contribute a portion of their salary with the contribution rate ranging from 4 to 11 percent depending upon the pension system and whether or not the employee participates in the federal social security program. Downstate teachers contribute 8 percent of their salary to the Downstate Teachers' Retirement System. The State is then required to pay the cost of an annuity over and above that provided through employees' contributions. The past practice of the State has been to appropriate an amount each fiscal year which is approximately equal to the estimated annual benefits paid by each system. Members' contributions and investment income are then invested with the purpose of increasing the asset base of the system.

Since 1974 total income of the Downstate Teachers' Retirement System has grown at a 15.1 percent average annual rate while total expenses of the system increased at only an 11.4 percent rate. This is quite a turnabout when compared with an income growth of 11.8 percent during the 1970–74 period while expenses were growing at over a 17 percent average annual rate. The main reason for this improvement is that the investment income of this system has grown at a 27.5 percent average annual rate over the past five years.

Another financial improvement of the system is related to its asset and liability structure. The asset base of the Downstate Teachers' Retirement System has grown at an average annual rate of 15 percent since 1974 while the liabilities of the system grew at only 8.9 percent. Viewed another way, while the assets of the Downstate Teachers' Retirement System have continually represented 55 percent of the total assets of the five state-supported pension systems, the liabilities of this system have proportionally dropped during the 1970s. In 1971 the Downstate Teachers' Retirement System accounted for over 65.6 percent of all state pension funds liabilities. By fiscal year 1978 their total liabilities structure accounted for 54.8 percent of the total liabilities of all state-supported pension systems. A related result is that the unfunded obligation of the State (the difference between liabilities and assets) has over the past five years grown at a 4.6 percent average annual rate for the Downstate Teachers' Retirement System compared with a 10.8 percent annual growth rate for all other state pension systems during the same period.

Even though the financial structure of the downstate system has shown improvement, it is believed by some that this system could be in financial trouble in years to come. This concern stems primarily from demographic factors and related legislation.

Enrollment of elementary school children has dropped some 16 percent nationally in the last decade. As the smaller birth cohorts of the mid-1960s have been reaching high school age, high school enrollments have begun to decline. High schools will thus increasingly experience the decreases in enrollment that have been occurring in elementary schools. The effects that this fact will have on the employment of teachers and thus the contributions into the retirement system is uncertain.

In an effort to stimulate the hiring of new teachers the State, as of August 1, adopted legislation which allows elementary and secondary school teachers with 20 years of experience to retire at age 55 without taking a cut in pension payments. The prior law penalized teachers that retired early by cutting the pension for each year not worked before age 60 by 6 percent.

According to the Illinois Education Association, about 6,000 of the state's approximately 110,000 teachers will be eligible for early retirement at the end of the current school year. The Downstate Teachers' Retirement System estimates that the no-penalty early retirement legislation will increase the state's share of the cost by some 1.2 million dollars per year downstate. This increase should have no effect on the state's ability to pay as it

State-Supported Pension Systems, Summary of Financial Data (millions)

	1970[a]	1971	1972	1973	1974	1975	1976	1977	1978
Total receipts	$ 298.7	$ 334.2	$ 324.3	$ 418.4	$ 453.2	$ 547.9	$ 599.9	$ 664.5	$ 755.0
Total expenditures	113.9	126.7	146.5	180.3	214.7	241.7	268.3	305.2	336.4
Asset balance	1,139.8	1,347.3	1,525.1	1,763.2	2,001.7	2,307.9	2,639.5	2,998.8	3,417.4
Liability balance	2,609.6	3,785.5	4,318.2	4,772.5	4,852.9	5,344.4	5,945.3	6,486.9	7,183.0
Total unfunded obligations	$1,469.8	$2,438.2	2,793.1	$3,009.3	$2,851.2	$3,036.5	$3,305.8	$3,488.1	$3,765.6

Source: Office of the Comptroller

[a] Fiscal years 1970-78

Downstate Teachers' Retirement System Financial Data (millions)

	1970[a]	1971	1972	1973	1974	1975	1976	1977	1978
Income									
Member contributions	$ 70.7	$ 79.0	$ 90.6	$ 95.1	$ 101.3	$ 112.9	$ 121.2	$ 124.5	$ 132.2
State appropriations	57.8	60.1	58.6	92.0	96.7	130.7	138.6	157.0	175.1
Other employer contributions	1.9	2.0	2.6	2.9	3.3	3.7	4.3	4.7	5.4
Investment income and other	27.3	36.5	40.1	42.8	45.0	65.9	76.5	93.1	118.9
Total income	$ 157.7	$ 177.6	$ 191.9	$ 232.8	$ 246.3	$ 313.2	$ 340.6	$ 379.3	$ 431.6
Expenditures									
Retirement annuities	$ 49.9	$ 57.7	$ 68.4	$ 84.0	$ 98.6	$ 111.1	$ 123.3	$ 136.4	$ 149.0
Death benefits	2.4	2.9	3.3	3.9	4.4	5.0	5.2	5.8	6.7
Disability benefits	0.8	0.9	1.0	1.1	1.3	1.6	1.9	2.2	2.5
Refunds	10.1	11.1	11.2	12.9	14.6	14.8	14.1	19.6	21.6
Other	2.4	2.2	2.3	4.6	4.2	8.4	9.9	9.7	9.5
Total expenditures	$ 65.6	$ 74.8	$ 86.2	$ 106.5	$ 123.1	$ 140.9	$ 154.4	$ 173.7	$ 189.3
Total assets	$ 620.1	$ 722.8	$ 828.6	$ 954.9	$1,078.1	$1,250.3	$1,436.5	$1,642.1	$1,884.4
Total liabilities	$1,570.5	$2,483.4	$2,703.7	$2,926.9	$2,790.6	$2,964.1	$3,274.6	$3,518.1	$3,933.8
Unfunded obligations	$ 950.4	$1,760.6	$1,875.1	$1,972.0	$1,712.5	$1,713.8	$1,838.1	$1,876.0	$2,049.4

Source: Teachers' Retirement System

[a] Fiscal years 1970-78

will increase its share by less than one percent of current state appropriations to the system.

The Downstate Teachers' Retirement System has yet to feel the effects of either this new legislation or of declining enrollment. If either have an impact on the current financial growth the system is experiencing is a question which we will have to wait to answer.

Income and Employment Data

Each year the Bureau of Economic Analysis of the US Department of Commerce makes available to the Bureau of Economic and Business Research its estimates of personal income and employment for the counties of the State. The reports give data for the second year before and several earlier years; the recently received 1979 reports include the income and employment data for 1972 through 1977.

The BEA bases its estimates primarily on administrative records of federal and state government programs, with additional information from various censuses or from nongovernment sources. The most important sources are the state unemployment insurance programs, the Social Security Administration insurance programs, and the Treasury Department's tax programs. Census data include surveys that are part of the Censuses of Agriculture and Population.

Personal income is defined as current income of residents of an area from all sources. It is measured after deduction of personal contributions to social security, government retirement, and other social insurance programs but before deduction of income and other personal taxes. It includes income received from business, federal, state, and local governments, households and institutions, and foreign governments. Personal income consists of wages and salaries (in cash and in kind, including tips and bonuses as well as contractual compensation), various types of supplementary earnings termed other labor income (the largest item being employer contributions to private pension, health, and welfare funds), the net incomes of owners of unincorporated business (farm and nonfarm with the latter including the incomes of independent professionals), net rental income, royalties, dividends, interest, and government and business transfer payments (consisting in general of disbursements to persons for which no services are rendered currently, such as unemployment benefits, social security payments, medicare benefits, retirement pay of governmental programs, and welfare and relief payments).

The BEA employment series measures the number of full- and part-time wage and salary employees plus the number of proprietors of unincorporated businesses. The latter includes farmers, independent professional practitioners, nonfarm business entrepreneurs, and others in self-employment status. The employment estimates are generally comparable in quality with BEA's estimates of labor and proprietors' income. They are mostly based on the same data sources and derived by the same general estimating procedures. However, unlike labor and proprietors' income, employment is measured in terms of place-of-work; no residence adjustment is made.

Detailed BEA income and employment data are available for each of the 102 counties and 10 SMSAs of Illinois for 1971 through 1977. A charge of $20.00 will be made for the entire set. A minimum charge of $2.00 will be made for individual county requests totaling 3 counties or less, and $1.00 per county for additional counties requested. A charge of $12.00 will be made for the 1977 transfer payment data for the 102 Illinois counties. BEA farm income and expenditure information for each county in Illinois is also available for $15. Those interested may write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois 61801. Please make check payable to the University of Illinois.

Government Payments to Illinois Farmers Decline

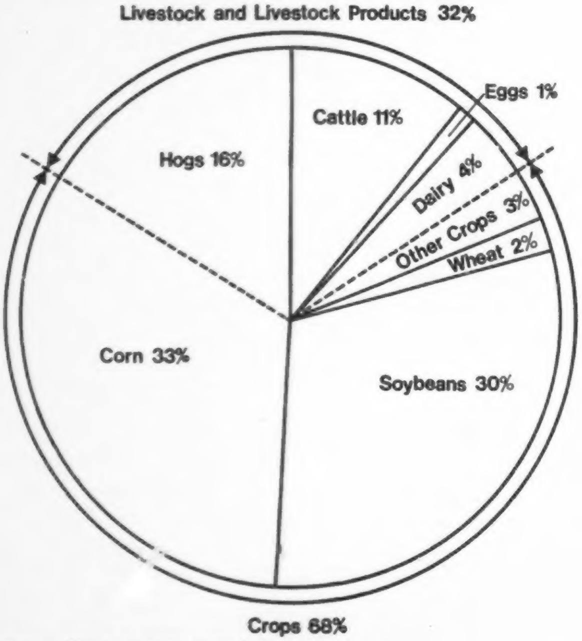
Cash receipts from marketings of crops, livestock, and livestock products are the major source of income for Illinois farmers. In 1977 cash receipts for crops totaled over $3.9 billion, compared with the $2 billion from livestock. Illinois marketings represented over 5 percent of the total US cash receipts for both categories, which puts Illinois fourth among the United States in the sale of all farm products. Illinois was the leading state in cash receipts from corn and soybeans and the second leading state from the sale of all crops. Cash receipts from Illinois crops increased nearly 100 percent in the last decade, while those from livestock rose about 40 percent. The major portion of this increase occurred in 1973 with livestock and crops rising by 22 and 38 percent, respectively.

Recent trends in cash receipts do not present an equally favorable outlook on the incomes of all types of Illinois farms. Cash receipts from livestock marketings rose by 5 percent from 1974 to 1977, but increased by less than 2 percent between 1976 and 1977. Crop marketings displayed a less favorable trend, with cash receipts remaining unchanged or declining between 1974 and 1977.

Government payments constitute another relatively important but declining source of income to Illinois farmers. The government payments allocated directly to Illinois farmers are from farm programs such as the Feed Grain, Wheat, Agricultural Conservation, and Wool Incentive Programs. Over half of the farmers in Illinois are not eligible for government assistance because they do not participate in the land set-aside program, or produce feed grains or wheat (see chart). Government payments, designed to control production, are inversely related to agricultural prices, and hence are sensitive to world market conditions. The increase in foreign demand for Illinois agricultural products in the early 1970s is reflected in the sharp increase in Chicago feed grain prices. Coincident with the price increase is a reduction in the percentage of feed grain production put under government support and a decline in the support price per bushel. For example, the quantity of corn put under support in the US fell from 420 million bushels in 1973 to 77 million bushels in 1974, while the support price fell from 70 to 51 percent of parity. The combined effect reduced government payments to US farmers over 86 percent.

A similar pattern is found in Illinois. While government payments to Illinois farmers totaled nearly $200 million in 1969, by 1977 they had declined to only $32 million. This figure represents less than 30 percent of the 1969–77 average. Government payments to Illinois farmers reached a peak in 1972 at $244 million and fell to less than $10 million in 1974 and 1976.

Illinois Cash Farm Income by Commodities, 1977



Source: Illinois Agricultural Statistics, Bulletin 78-4

County Income Estimates

Farming is more profitable in McLean County than anywhere else in the state. Recent farm income estimates indicate that McLean County generated total farm income in excess of $64 million, followed closely by Livingston, Iroquois, and Champaign counties. Total farm income is derived by subtracting production costs from cash receipts, government payments, and other farm income (imputed income and rent received). Cash receipts from McLean County livestock marketings were over $25 million in 1977, slightly less than the 1969 figure. Livestock marketing receipts averaged $26 million in the last decade, reaching a high of $30 million in 1973 and 1975, and a low of $23 million in 1972. Cash receipts from crop marketings have displayed a significant upward trend since 1973 when receipts totaled nearly $116 million, a 40 percent increase from 1972. Crop receipts were over $164 million in 1977, down nearly 10 percent from 1976.

The declining trend in government assistance to farmers is evident in McLean County. Government payments to McLean County farmers reached a 1972 peak of $5.3 million before plunging to $100 thousand in 1976. On average, McLean County received $4.3 million in government payments annually between 1969 and 1973, and only $200 thousand annually from 1974 to 1977.

Farm income and expenditure estimates for Illinois counties from 1969 to 1977 are now available. A fee of $15 is charged for the entire set with a minimum charge of $2 for requests for five counties or less. Inquiries should be addressed to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois 61801. **SUSAN J. LINZ**

Era Ends in the Telephone Industry

Illinois is unique among the states because every facet of its telephone industry, from research and development of new electronic equipment to warehousing final products, takes place within the State. The direct economic contribution of the telephone industry in Illinois is substantial, yet employment is tapering off as the industry becomes increasingly electronic.

The concept of scale economies is often associated with the telephone industry because there are overhead expenditures which must be undertaken on a certain scale before any service can be provided. The overhead costs of installing the main cables and wires, for example, have the same scale regardless of the subsequent number of phones put in operation. The advantages of expanding productive capacity to increase output at proportionately lower average costs are evident in Illinois. The telephone industry is divided up into companies classified by average annual operating revenues. Of the 54 telephone companies in Illinois, 31 have average annual operating revenues exceeding $250,000 (class A companies), and 17 fall within the $100,000–$250,000 range (class B companies). The remaining corporations are organized on a cooperative basis for the furnishing of telephone services.

Operating Statistics

The telephone industry is expanding. Illinois telephone companies operated 974 exchanges in 1978 to serve the state's 9.9 million telephones (up from 8.7 million in 1974). Approximately 5.2 million of the state's telephones are main stations (one line serving one telephone) and 4.7 million are extensions. Operating revenues for the entire telephone industry in Illinois total about $2.5 billion, up from $1.9 billion in 1975.

Two firms, Illinois Bell and General Telephone of Illinois, dominate the telephone industry in the State. However, the Illinois Commerce Commission estimates that the remaining class A telephone companies in Illinois operate nearly 340 exchanges and account for over 455,000 main stations. This subset of class A telephone companies generates net income of about $26 million, or $57 per main station annually, and pays Illinois taxes of about $16 million, or $35 per main station each year.

Illinois Bell dominates the more populated regions of the State. Wholly owned by AT&T, it serves over 3.3 million customers with some 8 million phones, and employs over 37,000 people in the State. Operating 229 exchanges, Illinois Bell generates net income of about $243 million, or $57 per main station, and pays Illinois taxes in excess of $15 million annually, or about $3.60 per main station. The entire Bell System — Illinois Bell, Western Electric, AT&T Long Lines, Bell Telephone Laboratories, and Teletype Corporation — employs over 59,000 people and spends more than $2.4 billion a year in Illinois. Total payroll, the biggest single expenditure of the Bell System, reached $1.2 billion in 1978. Purchases ranked second at $586 million, and local taxes third at $250 million. The economic impact of the Bell System in the State is augmented by the dividends that AT&T pays to shareholders in Illinois, which totaled over $202 million in 1978.

General Telephone of Illinois is the second largest telephone company in the State, operating 327 exchanges which service nearly 485,000 main stations and 393,000 extensions. General Telephone generates net income of about $34 million annually, or $70 per main station, and pays Illinois taxes of $2.4 million each year.

Class B telephone companies operate slightly more than 2 percent of the total number of telephone exchanges in the State, to serve about 10,000 main stations and 6,000 extensions. Combining all Illinois class B telephone companies yields a net annual income figure of about $450,000, or $42 per main station. These companies add over $22,000 annually to Illinois tax revenues. Moultrie Independent Telephone Company is the largest class B company in the state in terms of total operating revenues, generating $236,000 in 1978.

The six cooperative telephone companies in Illinois operate 61 exchanges, servicing nearly 22,000 main stations and 13,000 extensions. These companies generate net income of $545,000, or $25 per main station, annually.

Recent Developments

An era ended in 1978 when the last manual central office in the Bell System was retired and replaced with a modern electronic switching system. Switching equipment is central to the telephone network. It registers the phone number a customer dials and performs the necessary steps to connect the two parties. About 30 percent of the Bell System telephones have been converted from electromechanical to electronic switching systems. Indeed, these new electronic switching systems, manufactured by the Western Electric facilities in Lisle and Chicago, were being installed in 1978 at the rate of about one per day. Their advantages over the older systems include greater speed and reliability, and lower operating and maintenance costs. For example, electronic tandem switching, designed for stored program control, allows large corporations with widely scattered locations to control and monitor their networks from centralized consoles.

Electronic components are the building blocks of the telephone industry. Among the new electronic products is a microprocessor designed especially for telecommunications use. The microprocessor, about one-tenth the size of a postage stamp, contains 7,000 transistors and has the information-processing capability of a computer.

The Bell System has also been conducting a service trial of its lightwave transmission system in Chicago. This system uses lasers and light-emitting diodes to transmit voice, data, and video signals on hair-thin glass fibers.

SUSAN J. LINZ

Comparative Economic Data for Selected Illinois Cities, August 1979

	Building Permits (000)		Electric Power Consumption (000,000 kwh)		Postal Receipts (000)		Employment (000)		Estimated Work Force Unemployed (percent)	
	Aug. 1979	% change from Aug. 1978	Aug. 1979	% change from Aug. 1978	Aug. 1979	% change from Aug. 1978	Aug. 1979	% change from Aug. 1978	Aug. 1979	Aug. 1978
ILLINOIS	$ 161,571[a]	+0.7	3,718.4[a]	-1.3	$ 46,955[a]	+9.4	4,898.4	-3.9	4.6	6.0
NORTHERN ILLINOIS										
Chicago	$ 118,970	+17.1	1,782.1	-4.2	$ 36,511	+12.6	3,328.6[b]	+1.8	4.4[b]	5.9
Aurora	3,584	-36.7	148.5	-7.4	566	+4.0	39.0	+3.1	3.6	5.8
Elgin	3,418	+229.9	97.5	+6.6	563	-7.8	28.5	+2.1	4.2	6.2
Joliet	3,179	-19.1	392.6	+2.0	339	+6.9	47.7	+2.1	4.4	5.7
Kankakee	435	-52.4	78.4[c]	+5.6	195	-10.5	37.8[b]	-1.8	7.3[b]	7.5
Rock Island-Moline	4,715	+24.9	138.3[d]	+6.2	1,221	+9.3	110.4[b]	+3.5	3.5[b]	5.3
Rockford	2,724	-30.5	159.3	-4.6	850	+4.6	133.0[b]	+2.3	4.5[b]	5.1
CENTRAL ILLINOIS										
Bloominton-Normal	$ 3,952	-28.0	58.3	+3.9	$ 880	-1.7	56.4[b]	-3.4	2.7[b]	3.8
Champaign-Urbana	1,775	-52.2	62.5	+8.6	594	+0.5	74.7[b]	+7.1	3.7[b]	5.0
Danville	2,739	+209.1	48.0	+1.2	211	+0.4	19.4	+3.1	6.0	7.8
Decatur	2,935	-68.2	141.4	+1.4	489	-10.4	56.0[b]	-0.7	5.6[b]	9.4
Galesburg	659	-28.6	32.4[c]	-2.7	158	+10.4	15.9	-1.8	7.9	6.6
Peoria	3,784	-64.2	211.5	-4.1	1,361	+7.6	170.8[b]	+0.4	3.8[b]	4.8
Quincy	1,272	+36.6	47.1	+6.0	214	+0.4	20.0	-1.4	4.6	6.8
Springfield	5,711	-2.5	146.5	+2.7	1,903	-6.8	96.4[b]	-1.5	4.5[b]	5.8
SOUTHERN ILLINOIS										
East St. Louis	$ 282	+297.1	27.3	-11.9	$ 175	+1.1	23.2	+4.0	11.4	12.0
Alton	535	-19.6	83.9	-3.3	126	+5.8	15.7	+3.9	6.9	8.9
Belleville	472	-27.3	32.9	-6.0	285	-27.6	20.3	+4.6	4.8	5.1
Carbondale-Murphysboro	430	-8.7	40.3	+4.9	314	+7.5	13.7[e]	-3.5	7.5[e]	10.2

[a] Total for cities listed. [b] Data for standard metropolitan statistical area. [c] Includes immediately surrounding territory. [d] Includes East Moline.
[e] Data for Carbondale township.

The World Bank and the International Development Association: Increased Food Production II

ROLAND W. BARTLETT

This is the conclusion of the article of this title published in the October issue of this review.

To become self-sufficient in times of food shortage, a country must have adequate transportation. The World Bank/IDA has given high priority to projects for improving roads, rivers, railroads, and ports for both water and air. In 1978 there were 34 projects in 29 countries centered on improving transportation. Total costs for these in 1978 were $5.1 billion. World Bank/IDA loans and credits for these projects were $1.1 billion or 22 percent of the total.

One project initiated in 1978 forms an important part of the overall development of northern *Cameroon*. It serves several agricultural, industrial, and administrative centers in the country. Another in *Egypt* will increase the depth of the Suez Canal so that by 1980 it will accommodate ships with a gross weight of 470,000 tons drawing water up to 53 feet in depth. A third 1978 project on the *Ivory Coast* will include the improvement of the roadbed of the Regiedes Chemin de Fer, the purchase of locomotives, and provision for maintaining equipment and training facilities for the railroad.

In developing countries, large amounts of capital are necessary to develop industries and services needed for improving living standards. In 1978 the World Bank/IDA had 25 projects in development of finance companies in 19 countries. A total of $1,174 million was made available, four-fifths of which came from the World Bank/IDA. Power distribution lines, road improvements, and water transmission will be provided in *Colombia*. As a result of this project both exports and employment will increase in Cartegena, the capital of one of the country's poorest states. In *Upper Volta* credit and technical assistance to artisans and small and medium-sized enterprises will be provided. In *India* high-priority industrial projects located in low-income areas will be helped financially, which will help increase exports.

Distribution of World Bank Loans and IDA Credits, and Total Costs of Major Projects, 1978

Major projects	Bank loans and IDA credits (millions)	Total costs (millions)	Percent loans and credits were of total costs
Agriculture and rural development	$ 3,269.7	$ 13,568.18	24%
Electric power	1,146.2	5,412.88	21
Transportation	1,092.9	5,056.68	22
Development finance companies	909.9	1,174.15	77
Industry	391.8	1,651.53	24
Water supply and sewage	375.2	1,830.97	20
Urbanization	368.6	779.72	47
Education	351.9	620.64	57
Telecommunications	221.1	1,192.0	19
Nonprojects	155.0	188.6	82
Population and nutrition	58.1	137.5	42
Tourism	50.0	242.0	24
Technical assistance	20.3	29.8	68
Grand total	$ 8,410.7	$ 31,884.65	26%

Source: World Bank Annual Report, 1978, pp. 28-32, and 72-90.

As a developing country grows, it begins to produce manufactured goods to decrease imports. Eight industrial projects were initiated in 1978 within eight countries. The total cost for these projects was $1.7 billion; the World Bank/IDA loans and credit were about one-fourth of the total.

Romanian industries were badly damaged by a March 1977 earthquake. One project of the World Bank in 1978 was to aid in reconstruction, including funds furnishing specialized equipment for a National Center for Earthquake Engineering. In *Brazil* funds were provided for the construction of a plant to produce ethylene, propylene, butadiene, benzine, and other protochemical derivatives. Once in production, this plant will reduce imports of these products.

A safe water supply and an adequate sewage system are necessary to improve living standards. The World Bank/IDA in 1978 had 16 such projects in 14 countries. Total cost was $1.8 billion. World Bank/IDA's share was one-fifth of the total.

In 1978, the World Bank initiated a project to increase production of potable water and improving the water system serving the *Lisbon* region; 2.6 million people including about 300,000 urban poor will benefit from this project.

An IDA project in *Haiti* will rehabilitate and expand the water supply in seven provincial towns benefiting about 155,000 people, most of whom are low-income people.

Cities as well as rural areas need capital to bring about improved living standards. Thirteen projects in 13 countries were granted loans or credit in 1978; total cost was $786 million. The World Bank/IDA gave loans or credit for 47 percent of the total. One project in *Bolivia* will provide essential services in low-income areas of La Paz in construction of five retail food markets, credit to small-scale enterprises, and employment, benefiting around 10,000 families. A project in *Morocco* provides for squatter upgrading, improved employment, and equipment for community service.

Major emphasis on education is important in all countries, particularly those with low incomes. The World Bank/IDA have been giving attention to educational projects which will bring about improvement. In 1978, there were 20 projects for improving education in 20 countries at a total cost of $621 million. World Bank/IDA loans or credits were 57 percent of the total. In *Algeria* civil engineers and technicians were supplied to alleviate the shortage of this personnel; this included a workshop for an expanded network of vocational training centers. In *Honduras* a project to improve the quality of primary education in rural areas and to train specialized people in agriculture and forestry was started.

(Continued on next page)

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(Continued from page 11)

In 1978, curriculum development, teaching aids, and regional centers for adult education was begun in *Somalia.*

Telephones, television, and radios are a prerequisite to improved living standards in developing countries. In 1978 the World Bank/IDA initiated 5 projects in 5 countries. They contributed about one-fifth of the total cost of $1,192 million. In *El Salvador* the installation of additional local automatic telephones, long-distance equipment, and teleprinters in areas currently without service will be made possible. One hundred isolated locations will be provided with local telephone service in *Nepal* with funds from another project. The World Bank is working with the Indian government in a program to add more than a half million lines in India between 1977 and 1979.

Improved living standards for developing countries are dependent, in part, on improved nutrition and family planning. Two World Bank/IDA projects in two countries were started in 1978; the total cost will be $137.5 million, including a loan of $58.1 million from the World Bank.

Illinois Business Indexes

Item	Aug. 1979	July 1979	June 1979	May 1979	Aug. 1978
Leading indicator (1969=100)	94.6[a]	94.3	93.8	93.6	96.3
Coincident indicator (1969=100)	161.1[a]	161.5	160.9	159.7	155.8
Employment-manufacturing (in thousands)	1,240.0[a]	1,240.9	1,254.3	1,244.7	1,234.5
Average weekly hours-manufacturing	40.9[a]	40.5	41.0	40.6	39.9
Weekly earnings-manufacturing	$301.8[a]	$298.1	$299.5	$293.2	$271.1
Layoff rate-Chicago	n.a.	0.4	0.5	0.5	0.3
Ordinary life insurance sales (in millions)	$1,511	$1,476	$1,476	$1,548	$1,329
Retail sales (in millions)	n.a	$3,779[a]	$4,011	$4,090	$3,742
Coal production (in thousands)	5,535	3,661	5,600	5,581	5,774
Petroleum production (in thousands)	1,880	1,880	1,825	1,945	2,043
Vendor performance (percent)	55	60	70	76	65
Building permits (in thousands)					
Residential housing units	4.54	3.74	5.47	6.10	6.435
Value of residential housing	$191,514	$162,921	$234,120	$240,011	$252,546
Value of nonresidential housing					
Industrial buildings	$39,031	$55,019	$44,102	$58,435	$47,995
Office, banks, and professional buildings	$59,559	$57,941	$59,636	$51,624	$34,010
Stores and other mercantile buildings	$27,375	$36,932	$30,894	$43,665	$56,984
Other	$111,924	$98,707	$38,396	$61,768	$32,009
Consumer price index					
North Central US	120.3	n.a.	117.7	n.a.	106.5
North Central/population more than 4,000,000	121.0	n.a.	118.2	n.a.	106.4
North Central/population 385,000 to 1,250,000	120.5	n.a.	118.0	n.a.	107.3
North Central/population 75,000 to 385,000	119.0	n.a.	116.8	n.a.	106.1
North Central/population less than 75,000	119.5	n.a.	116.6	n.a.	106.9
St. Louis	n.a.	216.9	n.a.	211.1	n.a.
Chicago	218.6	217.4	213.5	210.1	190.9
Farm prices	112	120	118	117	108
	1979:I	1978:IV	1978:III	1978:II	1978:I
Personal income (in millions)	$104,625	$101,770	$99,795	$97,371	$94,325

Sources available upon request.
[a] preliminary. n.a. not available.

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What's Wrong With Workers' Compensation? The Lump-Sum Payment?

ALLAN J. HARRISON

There is really no serious dispute in the US regarding the purposes of a workers' compensation system. As stated by the National Commission on State Workers' Compensation Laws, the program should provide all injured or diseased workers with (1) complete appropriate medical care; (2) physical and vocational rehabilitation; and (3) continued earnings. An effective system would also (4) encourage safety; and (5) deliver benefits "in an efficient manner." The commission, however, apparently failed to consider adequately the most serious obstacles to accomplishing these goals. This becomes most obvious in a state such as Illinois, where the law was revised, in large part, based on the National Commission's recommendations. Although the law was properly modified for certain administrative changes such as allowing an employee a choice of his own doctor, and was also greatly altered to increase benefits, fundamental institutional relationships in the workers' compensation system — relationships which frustrate all of the foregoing goals — were not altered.

Whether paid as an award as a result of a hearing or reached in compromise with the employer or his insurer, the nexus of these problematical institutional relationships is the lump-sum payment or lump-sum settlement for permanent partial disability or impairment. The lump-sum settlement provides the economic incentive for a host of problems created by the activities of legal and insurance institutions. Indeed, the useful functions of these institutions have been greatly distorted by the lump-sum settlement system. Although the problems may be exaggerated, examining the Illinois system makes clear the harmful defects of the present system as they occur in varying degrees throughout the nation.

Allan J. Harrison is professor at the Institute of Labor and Industrial Relations, University of Illinois. He has been working with occupational safety and health policy and worker's compensation since the passage of the Occupational Safety and Health Act. He has produced a handbook, *Questions and Answers on Illinois Workers Compensation,* which has been widely distributed throughout the State and is in its fifth printing. This article is primarily the result of extensive discussions with people directly involved in the day-to-day problems of Illinois workers compensation; it also is in part the result of a sabbatical in England and Germany which permitted the comparison of work safety, health, and worker's compensation programs with those of the US.

Complete Appropriate Medical Care

The Illinois law permits an employee to choose his own doctor and to receive full payment for any and all medical care. Employers' and employees' concern over the ultimate settlement have, however, led to the selection and reselection of doctors and to medical treatment and examination based not mainly on medical need but on the high-stakes game of the amount to be paid for partial disability.

Since, in any serious injury, the ultimate settlement is largely based on medical evidence indicating the percentage of disability in a given limb or organ, knowledgeable and calculating employers, employees, and representatives of both, jockey from the outset to obtain a physician who is either very conservative or very liberal in his estimates of impairment. Ironically the company-selected physician exaggerates his effectiveness while the employee's doctor minimizes his. Medical prognosis, then, replaces medical performance as the standard for selecting an attending physician. There is no independent judgment of the doctor's expertise or effectiveness in actually *treating* industrial injury or disease, and the extent of recovery is not the basis for his selection and retention.

As a consequence, many Illinois employers continue to have company doctors for referral purposes, and although employees may select their own doctors at the company's expense, most are urged to go to the company

The Tokyo Round: Results and Implications *By S. C. Schmidt* / *Page 9*

doctor. Likewise, unions and employee attorneys have particular doctors to whom they guide injured workers.

In Illinois and nearly all states, the judgment on percentage of disability is determined not by a medical specialist, but by a layman employed by the appropriate state agency to act as a hearing officer or arbiter in the matter. In reaching his decision, he uses the medical evidence, some institutionalized rules of thumb, and other evidence which is only tangentially related to the actual extent of disability. The evidence of one party is thrown against the evidence of the other, and the state arbiter, in Solomon-like wisdom, cuts the baby somewhere in between. Unfortunately, in the process of developing the medical record and other evidence bearing on the extent of disability, the worker's care becomes a secondary concern.

Since an Illinois employee is not required to remain with one doctor, his attorney may advise him to keep changing physicians until the "right one" is discovered. And, even in states not requiring an employer to pay for any doctor, an injured worker often seeks, at his own expense, a doctor who will better the evidence in his case.

The employer, on the other hand, may apply pressure from the outset to get his employee to go to the company doctor. At a minimum, the law permits the employer to require examinations by a medical specialist of his choosing. Thus, activities that are dysfunctional are encouraged by the present system.

Physical and Vocational Rehabilitation

Real rehabilitation is obviously not encouraged in such circumstances, as there is no objective examination and evaluation of the employee's progress but only the self-serving submissions of two litigious parties attempting to persuade a layman to cut the permanent disability cake in their favor.

Other factors also work against both physical rehabilitation — the restored use of all faculties — and vocational rehabilitation — the restoration of the employee's ability to hold gainful employment comparable with his previous work.

Whether explicitly recognized or not, the award of permanent partial disability is influenced by the amount of time an employee is unable to work at the time of his injury — that is, the length of temporary total disability. Consequently, there is an attempt to get a worker back in the plant, mine, store, or office as soon as possible, regardless of his ability to perform any real work. This sham does nothing for an employee's respect for his employer, and more important, may interfere with the worker's receiving proper physical therapy and vocational retraining where they may be necessary. There are also, of course, employees who hang back from returning to work and resist treatment that would expedite their return as full participants in the work force. Why? Because they have learned, or been told, that this pays big dollars in the final settlement. Again the emphasis is distorted by legal gamesmanship.

Finally, there is great resistance to the reemployment of seriously injured employees, although reemployment is the basic factor in successful vocational rehabilitation. And payment of a large lump-sum settlement constitutes an implicit assumption that reemployment is not realistically expected. It would appear in many instances that if the money spent on litigation to obtain such settlements were used instead to ensure the worker's reemployability, a primary purpose of workers' compensation legislation would be advanced.

Continued Earnings

Due to the 1975 amendments which attempted to bring Illinois law into line with the National Commission's recommendations, it can be said that income has been maintained for the temporarily totally disabled. Because of the incentives latent in the lump-sum settlement approach, however, this cannot be said with certainty for either death or permanent total disability cases. It is still more questionable in the case of permanent partial disability.

Through the ignorance of many surviving dependents and the permanently totally disabled employee, the cupidity of some lawyers, and the fundamental policy of insurance companies, many of the totally disabled and the survivors of death cases never obtain their proper entitlement of continuing benefits adjusted annually for inflation. Since insurance companies do not wish to have an unspecified indeterminate liability, they willingly dangle a large sum (albeit much less than they would ultimately have to pay) before the permanently totally impaired and the dead employee's survivors. Although no reputable attorney would take any substantial portion of benefits due in such cases, there are some, as in any field, who are not quite so ethical. Clients are sometimes encouraged, contrary to their own best interest, to settle for lump sums, so that their lawyers may more readily collect large fees.

In cases of permanent partial disability, there seems little question that a seriously injured employee who accepts a lump sum is actually receiving an amount completely unrelated to his future loss of earnings. In some cases it may be greater, in some less, but the present system is not designed to compensate for long-term loss of earnings realistically. Also, lump-sum settlements

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usually require an employee to release his rights to future medical care related to his injury.

There is, however, a provision in Illinois law that allows the employee an option called "Partial Incapacity to Pursue Usual Employment." This provides for the payment of two-thirds of the difference between his previous earnings and the wage he receives at his new employment. Experience shows that injured employees are seldom advised of this aspect of the law, and for all intents and purposes, it is an unknown provision. That injured workers are rarely told of this choice may be explained by the fact that this alternative eliminates any lump-sum payment and, at a minimum, complicates the attorney's claim to some portion of the settlement.

Lump-sum payments, then, are often a poor solution for the individual worker and sometimes costly for the general public. Although a lump sum is supposedly offset against social security, the success of this mechanism depends entirely on an individual recipient's admitting that he has received workers' compensation. The National Commission found that 10 times as many people were receiving social security for work-related permanent total disability as had received workers' compensation awards for permanent total disability. This, of course, is subject to various interpretations. Many people settle for less than total disability, and social security is undoubtedly much freer with public money than insurance companies are with theirs. But it is hard to resist the possible conclusion that social security is being used as a back-up fund for injured employees who take their lump-sum money and run. Consequently, both social security and the employee lose.

Encourage Safety

The present litigious system has the added deleterious effect of, at a minimum, confusing and, more often, destroying, the relationship between the costs of workers' compensation cases and the actual safety record of the company. A company's experience in terms of costs is as apt to result from extraneous factors as it is likely to reflect the actual accident and sickness situation. Many factors contribute to the destruction of that relationship.

(1) Intimidation — some employers and/or insurers have been known to use intimidation to frustrate an employee's rights under the law. Large, but untold, numbers of employees never file any claims at all through fear of employer retaliation. Neither the law nor the insurance system has any effect on this fear, and the result is a payment system based not on accidents and disease rates, but on the lack of ethical behavior of an employer and/or his insurance carrier.

(2) Ignorance — in many states the burden lies entirely on the employee to pursue his rights, and many have not the slightest idea what those rights are. Again, neither the administration of the law nor insurance institutions encourage employee knowledge in this matter. The greater the ignorance, the less the cost.

(3) In combating the elements of intimidation and ignorance, an active, informed union can make a great difference in whether claims are pursued or not. Thus the existence of such a union can result in increased costs which do not reflect a greater incidence of injury and illness, but a more frequent pursuit of cases.

(4) The amount of any given award today depends on the presence, and relative abilities, of attorneys for the contesting parties. Again, the cost bears no relationship to the actual safety record of the employer.

(5) As previously discussed, the type of doctor consulted and the evidence he presents are both critical to the resolution of disputed cases. Again, there is no relationship to safety conditions.

(6) Finally, hearing officers in the State of Illinois are political appointees whose expertise may vary greatly. Thus, substantially different awards for the same injury may occur and this again, is unrelated to actual conditions.

In summary, the present system not only fails to deliver the desired level of worker benefits, but fails to provide an incentive for safety.

Deliver Benefits "in an Efficient Manner"

Additionally, the system renders impossible the fulfillment of the goal of efficiency — which, simply stated, is to maximize the percentage of the employers' dollars paid for workers' compensation which actually goes to provide employee benefits of medical care, rehabilitation, and income. Obviously, attorneys' fees and insurance administration costs take a big bite of those dollars, and the unnecessary or inappropriate use of doctors consumes still more. Finally, the lump-sum method of paying off claimants cannot be the best way of accomplishing society's main goal — getting the injured employee back to work as a contributing member of society rather than throwing him on social security. Such a system both sacrifices the productive potential of the individual and increases the costs of the productive part of society that pays for social security.

Finally, the present system means that today workers' compensation claims are handled like other claims in litigation and the peculiar nature of workers' compensation is not recognized. Consequently, the insurance industry does not specialize in it to any great degree, and it is just one of many risk insurance services provided to private industry. Were fewer more specialized insurance institutions involved, they could provide services to enable employers to prevent accidents and provide rehabilitation. The present system provides little incentive for such specialization.

Recommendations

The following recommendations for improvement are perhaps too utopian, as they would entail confrontations with powerful lobbying institutions in any state: the bar association, the insurance industry, and possibly the medical association. The accomplishment of the first of these recommendations, however, is presently within the capability of organized labor, or could be within a brief period of time.

(1) Organized labor should, as it has for many years in England, train its own personnel to represent em-

ployees in workers' compensation cases. When there is no question that a given injury arose from employment, the law is neither so difficult nor are the facts, aside from medical, so often in dispute that they cannot be handled by a layman. Certainly anyone able to present grievance arbitrations competently is also competent to present nearly all workers' compensation cases. Indeed, unions presently often do much of the lawyer's work gratis. This could be made quite attractive to employees both in terms of results and costs. Rather than charging on a percentage basis, the union could charge on an hourly basis with established flat minimums and maximums. The service would easily pay for itself. And, by removing many attorneys from the process, except in those highly difficult cases requiring an attorney's assistance, it would eliminate the chief benefactors and proponents of the present system.

(2) Lump-sum settlements should not be permitted except in very rare cases, such as that of a retiring worker. In permanent partial disability cases the existing option of awarding two-thirds of the difference between the employee's present wage and his new earnings should become the rule rather than the rare exception. The award should be reviewed regularly, perhaps every three to five years, to permit adjustments for the employee's lack of, or continued, improvement. Legal fees or fees to the employee's representative should be based on the amount of time actually spent on the case, and should be paid by the employer. The fees and their payment should be a clearly stated part of the award, and in case of controversy, the arbiter should be empowered to determine the appropriate fee.

(3) Medical care should be provided only by certified specialists recognized as professionals in the fields of industrial injury and disease by both labor and management. From among these certified specialists, an employee might choose his doctor. In small communities where such specialists are not available, the employee would first, of course, receive treatment from his local physician. If the percentage permanent disability system has not been completely eliminated by change to the two-thirds option award, he might then choose one of the recognized specialists to certify his degree of disability.

(4) The state, in cooperation with labor and management, should establish a single insurer for all employers; that insurer should be governed by a body consisting of equal numbers of labor and management. Along with its more usual insurance functions of collecting premiums and paying claims, the insurer would also (1) experience-rate every employer and adjust his rates accordingly; (2) provide free safety and health consultation to both labor and management at either's request; (3) establish and maintain rehabilitation facilities; (4) provide training in health and safety; and (5) accredit health and safety specialists and review the performance of doctors specializing in industrial health and safety. Lacking provision for a monopoly, such a state insurer should be established to compete with the present private system.

Although these recommendations require a degree of legislative courage not often encountered, without such fundamental reform the goals established by the National Commission will never be achieved. It is indeed ironic that those who are most victimized by the present system, employers and employees, seem to be hopelessly locked in a political confrontation that has little to do with the system's inherent shortcomings. They have permitted those hired to serve their interests, lawyers and insurance institutions, to become instead the masters and chief beneficiaries of the system. Moreover, since the attorneys and insurers are the primary information sources for not only employers and labor, but also elected officials, it is extremely unlikely at this time that basic change will receive a hearing, let alone a chance. Yet there is always a possibility that labor and management will awaken to their and to society's self-interest. When that occurs, fundamental change cannot be far behind.

Illinois Business Indexes

Item	September 1979	August 1979	July 1979	June 1979	September 1978
Leading indicator (1969=100)	94.6[a]	94.2	94.0	93.7	96.4
Coincident indicator (1969=100)	157.4[a]	158.1	160.0	160.4	156.0
Employment-manufacturing (in thousands)	1,240.5	1,239.1	1,240.9	1,254.3	1,240.9
Average weekly hours-manufacturing	41.5	40.9	40.5	41.0	40.2
Weekly earnings-manufacturing	$309.05	$301.87	$298.1	$299.5	$277.36
Layoff rate-Chicago	n.a.	0.5	0.4	0.5	0.2
Ordinary life insurance sales (in millions)	$1,347	$1,511	$1,476	$1,476	$1,272
Retail sales (in millions)	n.a.	$3,992[a]	$3,779	$4,011	$3,638
Coal production (in thousands)	$4,597	$5,535	$3,661	$5,600	$5,360
Petroleum production (in thousands)	$1,850	$1,930	$1,871	$1,825	$1,934
Vendor performance (percent)	51	55	60	70	66
Building permits (in thousands)					
Residential housing units	n.a.	4.54	3.74	5.47	6.35
Value of residential housing	n.a.	$191,514	$162,921	$234,120	$236,734
Value of nonresidential housing					
Industrial buildings	n.a.	$39,031	$55,019	$44,102	$28,472
Office, banks, and professional buildings	n.a.	$59,559	$57,941	$59,636	$43,604
Stores and other mercantile buildings	n.a.	$27,375	$36,932	$30,894	$21,807
Other	n.a.	$111,924	$98,707	$38,396	$31,850
Consumer price index					
North Central US	n.a.	120.3	n.a.	117.7	n.a.
North Central/population more than 4,000,000	n.a.	121.0	n.a.	118.2	n.a.
North Central/population 385,000 to 1,250,000	n.a.	120.5	n.a.	178.0	n.a.
North Central/population 75,000 to 385,000	n.a.	119.0	n.a.	116.8	n.a.
North Central/population less than 75,000	n.a.	119.5	n.a.	116.6	n.a.
Chicago	221.3	218.6	217.4	213.5	n.a.
St. Louis	222.2	n.a.	216.9	n.a.	n.a.
Farm prices	113	114	120	118	109
	1979:II	1979:I	1978:IV	1978:III	1978:II
Personal income (in millions)	$110,286	$106,920	$103,397	$101,587	$99,201
Total labor and proprietors' income by place of work					
By type					
Wage and salary disbursements	$ 71,737	$ 69,750	$ 67,259	$ 66,220	$ 64,871
Other labor income	7,466	7,084	6,817	6,714	6,514
Proprietors' income	7,185	6,867	6,464	6,342	6,639
Farm	2,027	1,725	1,349	1,477	1,806
Nonfarm	5,158	5,142	5,116	4,954	4,833
By industry					
Farm	2,339	2,025	1,630	1,757	2,080
Nonfarm	84,048	81,676	78,910	77,615	75,944
Private	73,168	71,033	68,831	67,672	66,397
Ag. Serv., for., fish., and other	197	188	180	177	175
Mining	918	881	880	851	779
Construction	4,821	4,752	4,634	4,574	4,461
Manufacturing	26,602	25,413	24,320	23,954	23,300
Nondurable goods	8,092	7,930	7,684	7,671	7,468
Durable goods	18,511	17,483	16,637	16,284	15,832
Transportation and public utilities	6,875	6,793	6,554	6,265	6,200
Wholesale trade	6,468	6,302	6,202	6,277	6,139
Retail trade	8,084	7,943	7,767	7,581	7,390
Finance, insurance, and real estate	5,255	5,149	5,045	5,008	4,918
Services	13,947	13,613	13,248	12,985	13,037
Government and government enterprises	10,880	10,643	10,080	9,943	9,546
Federal, civilian	1,811	1,795	1,783	1,735	1,725
Federal, military	524	513	507	496	507
State and local	8,545	8,335	7,790	7,712	7,315
Income by place of work					
Wage and salary disbursements	71,737	69,750	67,259	66,220	64,871
Farm	278	267	251	244	246
Ag. serv., for., fish., and other	123	116	111	108	106
Mining	707	680	680	662	605
Construction	3,925	3,840	3,716	3,670	3,586
Manufacturing	23,027	22,054	21,112	20,796	20,248
Nondurable goods	7,073	6,950	6,736	6,726	6,553
Durable goods	15,954	15,104	14,375	14,070	13,695
Transportation and public utilities	5,812	5,759	5,550	5,287	5,246
Wholesale trade	5,636	5,501	5,406	5,490	5,369
Retail trade	6,891	6,759	6,609	6,471	6,324
Finance, insurance, and real estate	4,125	4,053	3,942	3,931	3,868
Services	10,648	10,381	10,090	9,893	9,994
Government and government enterprises	10,563	10,340	9,792	9,660	9,279
Federal, civilian	1,729	1,715	1,704	1,658	1,649
Federal, military	524	513	507	496	507
State and local	8,311	8,111	7,581	7,507	7,123

Sources available upon request.

[a] preliminary. n.a. not available

Comparative Economic Data for Selected Illinois Cities, September 1979

	Building Permits (000)		Electric Power Consumption (000,000 kwh)		Postal Receipts (000)		Employment (000)		Estimated Work Force Unemployed (percent)	
	Sept. 1979	% change from Sept. 1978	Sept. 1979	% change from Sept. 1978	Sept. 1979	% change from Sept. 1978	Sept. 1979	% change from Sept. 1978	Sept. 1979	Sept. 1978
ILLINOIS	$142,521[a]	*+26.0*	3,592.5[a]	*-7.6*	$53,183[a]	*+0.1*	n.a.	n.a.	n.a.	n.a.
NORTHERN ILLINOIS										
Chicago	91,883	*+70.0*	1,740.1	*-7.0*	41,078	*-1.1*	n.a.	n.a.	n.a.	n.a.
Aurora	4,081	*-13.2*	135.8	*-14.6*	584	*-16.8*	n.a.	n.a.	n.a.	n.a.
Elgin	4,304	*+156.1*	92.2	*-26.1*	742	*+2.9*	n.a.	n.a.	n.a.	n.a.
Joliet	1,617	*-4.3*	376.0	*-6.2*	372	*-5.1*	n.a.	n.a.	n.a.	n.a.
Kankakee	309	*-38.6*	77.6[b]	*-6.2*	259	*+0.3*	n.a.	n.a.	n.a.	n.a.
Rock Island-Moline	5,838	*+202.9*	141.9[c]	*+2.1*	1,280	*-6.8*	n.a.	n.a.	n.a.	n.a.
Rockford	4,513	*+78.5*	163.9	*-4.1*	1,016	*+14.8*	n.a.	n.a.	n.a.	n.a.
CENTRAL ILLINOIS										
Bloomington-Normal	$ 10,005	*+159.1*	54.1	*-10.4*	$ 1,008	*+2.6*	n.a.	n.a.	n.a.	n.a.
Champaign-Urbana	2,934	*-82.6*	59.0	*-1.3*	774	*+4.4*	n.a.	n.a.	n.a.	n.a.
Danville	2,227	*+68.3*	47.3	*-4.6*	225	*-6.2*	n.a.	n.a.	n.a.	n.a.
Decatur	2,491	*-32.2*	138.1	*+1.8*	523	*+3.9*	n.a.	n.a.	n.a.	n.a.
Galesburg	241	*-68.5*	36.8[b]	*+4.2*	165	*-7.3*	n.a.	n.a.	n.a.	n.a.
Peoria	4,092	*+2.8*	195.2	*-15.3*	1,639	*+16.4*	n.a.	n.a.	n.a.	n.a.
Quincy	1,866	*+169.2*	45.4	*+2.2*	277	*+10.3*	n.a.	n.a.	n.a.	n.a.
Springfield	4,391	*-64.2*	111.4	*-12.9*	2,156	*+5.0*	n.a.	n.a.	n.a.	n.a.
SOUTHERN ILLINOIS										
East St. Louis	$ 235	*+422.2*	28.1	*-7.5*	$ 175	*-2.7*	n.a.	n.a.	n.a.	n.a.
Alton	569	*-56.0*	80.8	*-3.4*	139	*-6.0*	n.a.	n.a.	n.a.	n.a.
Belleville	566	*+42.5*	31.9	*-8.0*	395	*-9.4*	n.a.	n.a.	n.a.	n.a.
Carbondale-Murphysboro	359	*-56.2*	36.9	*-11.5*	376	*+25.7*	n.a.	n.a.	n.a.	n.a.

Sources available upon request.

[a] Total for cities listed. [b] Includes immediately surrounding territory. [c] Includes East Moline. n.a. not available

Since the Fed Action

The Federal Reserve System announced important changes in monetary management procedures on October 6. The discount rate was increased from 11 percent to 12 percent; reserve requirements were imposed on certain "managed liabilities" of member banks and Edge Act corporations, as well as those of United States branches and agencies of foreign banks. Moreover, Paul Volcker, the recently appointed chairman of the Board of Governors, announced that day-to-day operations of the Fed would henceforth be directed toward controlling monetary aggregates — such as bank reserves, the money supply, or total bank credit. Interest rates would be permitted to move to their market level, given the policy-determined rate of growth in monetary aggregates.

Nearly two months have elapsed, at this writing, since the announced change in Federal Reserve management procedures. However, more than a month was allowed before the changes became fully effective. Even so, the period has witnessed a marked change in several important financial indicators.

Slower Monetary Growth

The growth of the narrow money supply (M1) has slowed sharply since early October. Indeed, as the chart indicates, the money supply declined in the three weeks immediately following the policy change. In contrast, from spring to early October money expanded at more than a 10 percent annual rate.

The broad money supply (M2), which includes net time deposits, has also declined since early October (see chart). From spring to October this measure of money had expanded at nearly a 12 percent annual rate.

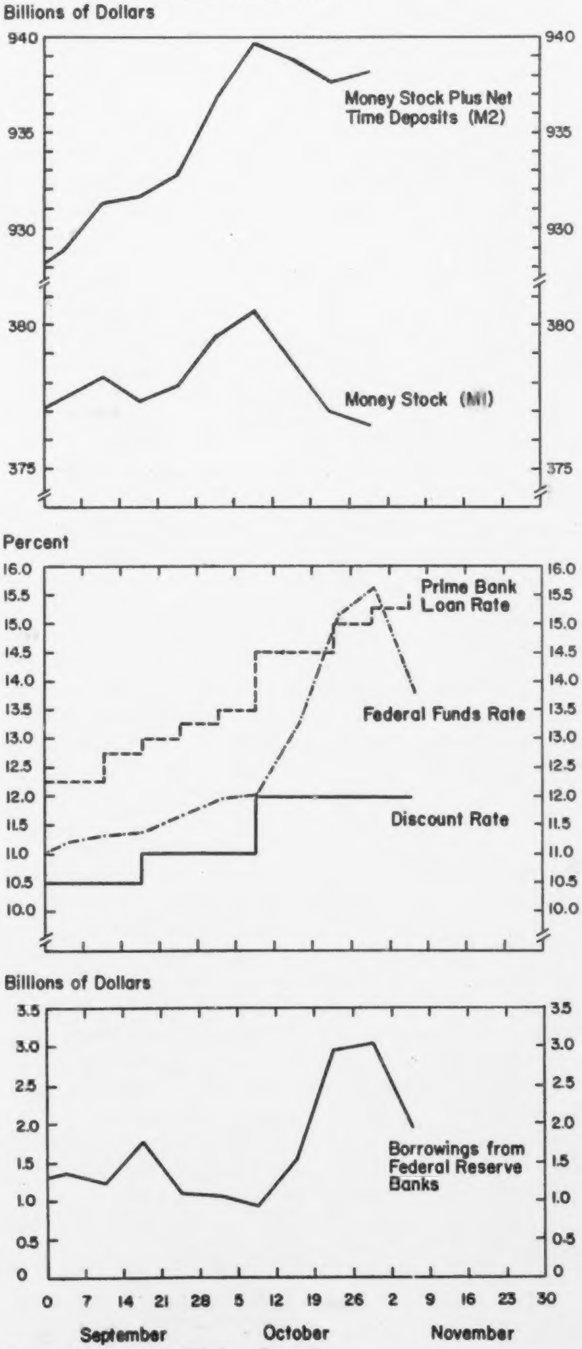
The declines in money reflect a reduction in bank lending. Business loans by large commercial banks have dropped sharply since early October. In turn, banks have found it necessary to cut back their lending because the Federal Reserve has reduced bank reserves and, as already stated, has increased reserve requirements.

The volume of bank reserves sets a limit on the size of bank liabilities — because banks must hold reserves in proportion to the size and composition of their liabilities. This role of bank reserves is sometimes difficult to understand — in that it runs counter to our normal understanding of the process. From the point of view of the individual bank, reserves are acquired as they accept deposits from their customers. Individual banks lend funds deposited by their customers. However, causation is reversed in considering the banking system as a whole. From this perspective, it is the Federal Reserve that determines the total volume of bank reserves. The Fed adds to bank reserves by purchasing government securities; it reduces bank reserves by selling securities. If the banking system receives injections of reserves it is in a position to make additional loans. Rising loans (assets to the banking system) cause rising bank deposits (liabilities to the banking system). Since early October, however, this process has been reversed.

Rising Interest Rates

Immediately following the Fed policy announcement, interest rates bolted upward (see chart). The prime rate,

Selected Financial Indicators



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the rate of interest banks charge their most credit-worthy corporate borrowers, rose immediately from 13.5 percent to 14.5 percent, then moved to a high of 15.75 percent. Most other interest rates — including all ranges of the maturity structure — also moved higher.

The federal funds rate skyrocketed following the Fed's October 6 announcement. The federal funds market is a market in which banks lend and borrow reserve balances. Federal funds were trading about 1 percentage point above the discount rate prior to its increase to 12 percent. Notwithstanding the increase, by the end of October, the federal funds rate was more than 3.5 percentage points above the discount rate. As a result, the Federal Reserve became an increasingly attractive source of funds. Borrowing from Federal Reserve banks rose from just under $1 billion in early October to more than $3 billion in late October (see chart).

Continued High Interest Rates

In recent weeks interest rates have backed off from highs reached in early November and member bank borrowing has edged downward. This development has contributed to speculation regarding whether interest rates have already peaked or whether they are likely to peak in the near-term future.

It is plausible to construe the recent interest rate declines as a short-term correction. Spurred by uncertainties generated by the Fed announcement, interest rates bolted somewhat above their equilibrium level. Over the longer term, interest rates are determined by the interplay between the supply and demand for credit. An important ingredient in this market process is the expected rate of inflation. As long as the basic rate of inflation remains near 10 percent, interest rates will remain near, or above, present levels. Interest rate declines over the longer term depend upon what happens to the rate of inflation.

It is not a foregone conclusion that restrictive monetary measures will affect the rate of inflation. For any measure to be effective it must, at length, impinge on the myriad pricing and wage-setting decisions through which the inflation process exerts itself. Aside from a short-term psychological impact of an announced policy change, presumably these price and wage decisions will be influenced over an extended period of time by persistent insufficient demand — that is, by slack markets. Here again, however, there is no solid presumption that wages and prices will stabilize. It is argued that major segments of the corporate and union structure have sufficient power to hold the line on prices — or increase them and, instead, cut production. In any event, even if the hoped-for effects of monetary restriction materialize, the economy must brace itself for a long wait.

Other Economic Developments

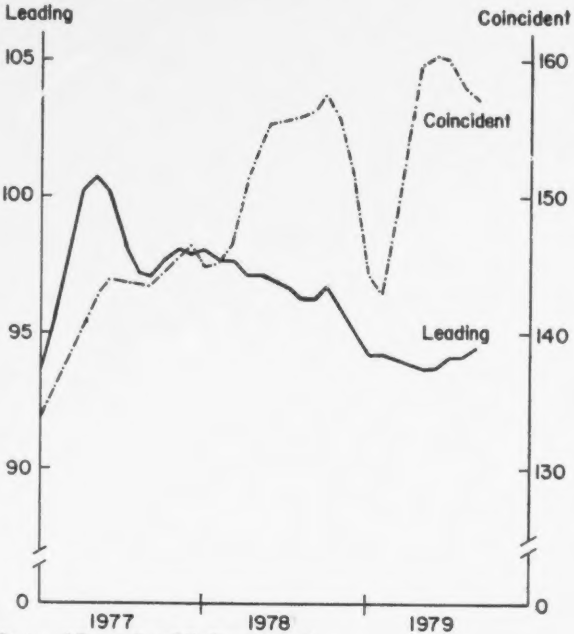
Meanwhile, the underlying economy continues to exhibit weakness. Although real GNP — that is, gross national product adjusted for changes in prices — rose in the third quarter, there has been essentially no net growth since the end of last year. Similarly, industrial production — the output of mines, factories and utilities — has registered little gain since last December. Housing starts, which averaged just over 2 million units last year, are down about 10 percent on average in 1979.

Reflecting the weakness in physical output, the growth in employment has slowed sharply since spring. Whereas total employment had been expanding at about a 4 percent annual rate during the last months of 1978 and the early months of this year, since March employment growth has averaged less than 2 percent. As a result, unemployment has moved higher.

Notwithstanding the weakening economy, the rate of inflation continues to be robust. For the year, consumer prices have risen at a 13.5 percent rate. Producer prices have also risen rapidly, as sharp increases in industrial prices have overwhelmed the relative stability in food prices.

WILLIAM R. BRYAN

Illinois Economic Indicators



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Our two indicators showed mixed results in September. The leading indicator scored a small gain, whereas the coincident indicator reported a slight decline. Average weekly hours in manufacturing rose by a small percentage on a seasonally adjusted basis. Vendor performance also increased slightly in September. Since data for retail sales, layoff rate, and building permits were not available at press time, the results presented here are tentative and may be subject to revision.

The Tokyo Round: Results and Implications

S. C. SCHMIDT

The General Agreement on Tariffs and Trade (GATT) provides the framework for negotiations to free international trade of tariffs and other trade barriers.

Since its establishment in 1947, GATT has been the forum for seven successive rounds of negotiations in which the level of tariffs on imports has been progressively reduced. The most recent initiatives, officially launched in September of 1973 and called the "Tokyo Round," were concluded five-and-one-half years later, on 12 April 1979.

The accords reached in the Tokyo Round are embodied in a large number of separate agreements that may be grouped under three areas: tariff reductions; multilateral agreements and arrangements on a number of nontariff measures; and other sectoral and nontariff agreements.

Tariff Reductions

The tariff reductions apply to over $125 billion in world trade in 1976 values and would cover a substantially higher amount now. The value in this context is measured by calculating the value of existing trade in tariff categories affected by the concessions. Industrial products accounted for most of tariff cuts covering $110 billion of trade. Reductions were also exchanged on nearly $15 billion of world trade in agricultural products, out of a total of $48 billion of farm trade in 1976.

Industrial Tariffs. Estimates of tariff concessions by the major developed countries suggest a one-third reduction in the level of industrial tariffs taken together; they average about 31 percent for the US, about 27 percent for the European Economic Community (EEC), about 28 percent for Japan which had much higher tariffs than others, and 34 percent for Canada.

Tariffs on raw materials are scheduled to drop 52 percent, rates on semimanufactured goods 30 percent, and customs duties on finished manufactures 33 percent. The largest reductions were made in fuels excluding petroleum, nonelectrical machinery, wood products, chemicals, and transport equipment. Less than average reductions were made in textiles and leather sectors.

Agricultural Trade Concessions. The US has reached bilateral agreements with 41 countries, including 19 developing nations. The US received concessions in the form of reduced tariffs and nontariff barriers of $4 billion. The main commodities benefiting from these concessions include soybeans, rice, and cotton, and a number of specialty products such as meats, tallow, tobacco, fresh and canned fruits and juices, vegetable oils, and protein meals.

The largest export gains, estimated at over $250 million, are expected to be in livestock and livestock products (Table 1). Tobacco exports are seen to increase by about $86 million and oilseeds by about $83 million as a result of trade concessions. Among major US exports, grains are expected to realize the smallest gains in sales. The increases are mainly in exports of feed grains to developing countries and in rice to the EEC.

Most of these concessions were granted by the United States's two chief trading partners — the EEC and Japan. The US has won greater access to the EEC market for about $970 million of farm commodities comprising beef, poultry, rice, tobacco, and fruit products. The EEC also committed itself not to raise tariffs on various products above their current rates bound under GATT. This binding is of importance for US soybeans which now enter the EEC market duty-free.

Japanese trade concessions covered agricultural exports of $1.3 billion (1976 base). The concessions were granted in the form of tariff cuts averaging about 35 percent from statutory rates and increases in import quotas. Tariff reductions that will be of interest to the US are those on fresh grapefruit, lemons, limes, almonds, raisins, beef offals, pork, and chicken legs. The two largest concessions to the US by Japan cover trade in beef offals and pork worth respectively about $108 million and $102 million in 1978. Expansion of import quotas for high-quality beef, oranges, and citrus juice will increase US export opportunities for these commodities. Japan has also committed itself not to raise tariffs on various products above current rates. These bindings, especially the current duty-free status of soybeans, will provide a continued unhindered access to the Japanese market for important US agricultural exports. Canadian concessions were

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Table 1. Estimated Value of Tokyo Round Trade Concessions for US Exports (thousands of dollars)

Commodity	Nontariff trade barriers	Duty reductions	Total[a]
Livestock	199,800	53,203	252,003
Grains	23,600	2,680	26,280
Oilseeds	55,200	27,548	82,748
Fruits/vegetables	42,450	20,664	63,114
Tobacco	84,600	1,000	85,600
Total	405,650	104,095	509,745

Source: US Department of Agriculture, FAS, Foreign Agriculture (Washington: July 1979), p. 8.

[a] The estimate of increased trade is based on full implementation of all the concessions. Implementation time will vary by commodities and countries. However, full implementation of all concessions is expected to occur at the latest by 1987.

$422.5 million; of this, $412.6 million involved commodities for which tariffs were reduced. Among developing countries, the US has received offers of concessions from Mexico, the Philippines, Korea, India, and others.

The US has obtained improvements in access to foreign country markets by offering access to its own market; concessions were extended on agricultural imports valued at around $2.6 billion (1976 basis). About half were made to developed countries for fresh and frozen beef, lamb meat, wool, live cattle, and certain grain products. Most of the remainder is in vegetable oils, inedible molasses, fruits, vegetables, and preserved beef with concessions mainly to developing countries. Also, the US has raised import quotas on certain cheeses by 15 percent over 1978 levels. The imposition will put about 85 percent of US cheese imports under quota, compared with the current level of about 50 percent. The new trade bill which will implement the agreement reached in GATT negotiations will authorize the President to limit the amount of some cheeses entering the US in any year after 1979 to not more than 110,000 tons.

Multilateral Agreements and Arrangements

Agreements and arrangements were concluded aimed at the reduction or elimination of specific measures that distort trade or at more effective international control. These agreements are grouped under three categories: (1) framework for the conduct of world trade; (2) nontariff measures; and (3) agriculture.

The framework agreements are designed to achieve three broad objectives: the granting of special or more favorable treatment to goods traded by developing countries; codification of practices and procedures under which restrictive trade measures may be taken for balance-of-payments purposes or safeguard measures to help development; and to improve the legal framework for the conduct of trade. Of special importance to developing countries is that the agreement gives a permanent legal status to trade preferences granted by developed to developing countries or by developing countries to one another. As to improvements in the operation of the international trading system, the major achievements came in the revision of GATT's procedures for settlement and surveillance of trade disputes.

Nontariff Measures. The number and diversity of nontariff barriers made it impossible to find a general solution for their treatment or to dispose of them altogether. As a start, action was taken on a selected number of barriers that fall into five categories.

The customs valuation code eliminates the use of widely varying and arbitrary assessment methods, some designed to keep out foreign products. It establishes a uniform set of international rules for customs valuation purposes making imported goods dutiable on an ad valorem basis. For the US the application of the new code will require the abandonment of the selling price customs valuation system. While this change is expected to help US exporters and importers, it will have no major impact on US agricultural trade.

The government procurement code is designed to discourage discrimination against foreign suppliers when governments purchase articles for their own use. Essentially, it opens up government procurement contracts to international bidding through agreed nondiscriminatory procedures and practices. On the whole, the application of this code is estimated to provide US access to about $20 billion. Because agricultural procurement programs are excluded from the regulation the code will have little or no impact on US agriculture.

The code on import licensing simplifies the procedures for the issue of licenses and seeks to eliminate their import-restrictive effects regardless of the way or purpose of application. The US import licensing procedure is in accord with the code.

The subsidies and countervailing duties code sets out the conditions and obligations covering the application of such practices and provides a mechanism for dispute settlement. The code bans subsidies on exports of manufactured products and minerals and stiffens rules for their application on exports of agricultural and other primary products. Basically this code aims at reducing the danger of losing traditional markets by exporting countries because of subsidized competition.

Subsidized competition in export markets has been especially keen for such commodities as wheat, flour, barley, oilseeds, dairy products, and vegetable oils. US agricultural exports stand to gain from the tightening of rules on the use of export subsidies in the world market.

On countervailing duties, the code made no substantive changes in existing GATT regulation. New elements are the establishment of special procedures for settlement of disputes about injury to the domestic industry, and more precise definitions of material injury and of casualty. The new code retains the right of self-defense of importing countries against injuries by subsidized import competition in their home markets.

On technical barriers to trade the code sets out rules of conduct on product standards, product testing, and product certification systems. It establishes dispute settlement procedures, secures reviews of complaints, and sets rules for the redress of violations. The code applies to both agricultural and industrial products. Special temporary exceptions are provided where questions of public safety, health, environmental protection, or national security are involved.

Agricultural Arrangements. Plans to conclude comprehensive multilateral agreements covering wheat, dairy, and meat trade did not materialize. Only consultative arrangements were established for the regulation of trade in bovine meat and dairy products.

The arrangement on bovine meat provides for the expansion and stabilization of international trade in beef, veal, and live cattle. This is to be achieved by the progressive dismantling of trade restrictions and improvement of international cooperation in this sector. Beef-exporting and -importing countries will participate in an international meat council, established within GATT, to serve as a forum for regular consultation on matters affecting international trade in beef products and live cattle. The council will make recommendations of possible remedial measures for problems that may arise for participants. Developed countries offered technical assistance for developing countries, if needed, to improve their meat sector.

The international dairy arrangement calls for an expansion and liberalization of world trade in all dairy products; achievement of greater stability in this trade; mitigations of fluctuations in prices and supplies; and encouragement of developing countries to participate in the expansion. The arrangement has three protocols containing specific provisions, including minimum prices, for international trade in (1) certain milk powders; (2) milk fats including butter; and (3) certain cheeses. To implement it an international dairy products council is to be established within GATT. The council will hold consultations on problems needing resolution among participants. Developed countries agreed to provide technical assistance to developing countries and committed themselves to make dairy products available to developing countries as food aid.

The protocol on milk powder sets rules on how Australia, New Zealand, EEC, Canada, and other countries will export powdered milk for use as animal feed under a control system.

Other Sectoral and Nontariff Agreements

An important agreement has been reached under the heading, *Trade in Civil Aircraft,* signed by Canada, EEC, Japan, Sweden, and the US. The signatories are committed to eliminate by 1 January 1980 all customs duties and similar charges and all import restrictions on civil aircraft.

Another category of agreements was grouped under the heading of *Amendments of the Antidumping Code* signed by 10 of the participants in the multilateral trade negotiations. It updates provisions on the determination of injury; price undertakings between exporters and the importing country; and the imposition and collection of antidumping duties with the relevant provisions of the code on subsidies and countervailing duties.

Implementation Schedule

The agreements concluded in the negotiations require legislative approval. With the passage of the Trade Act of 1979 in July, Congress approved the Tokyo Round package. The protocol will be open for acceptance by the participants until 30 June 1980. It will go into force on 1 January 1980 for participants who have ratified it before that date. The tariff cuts will be phased in mostly over an eight-year period starting 1 January 1980 with the total reduction to become effective no later than 1 January 1987. Participants, however, have the option of implementing reductions at earlier stages. Developing signatory countries may delay application of tariff reduction schedules and the adoption of new codes of behavior to limit nontariff distortions of trade.

Implications of Results

Expected Gains. The negotiations have opened up new trading opportunities that can yield broadly based benefits to certain sectors of the economies of signatory countries. In principle, benefits could materialize in terms of (1) consumption gains in lower costs or a greater availability of products; (2) production gains by providing an incentive for making investments and greater confidence in production decisions; and (3) a more competitive and efficient domestic economy by exposing national producers to desirable competitive influences.

With respect to tariff cuts the negotiations fell short of expectations because the agreed-on reductions averaged only about half of the 60 percent target the US had set. Moreover, because of the long implementation period, the impact of the modest tariff reductions will be gradual and hence the net effect on the US balance of trade, employment, and prices rather small.

The benefits of the reduction on nontariff barriers are difficult to assess. Benefits should come from a greater degree of control over export subsidies and the application of import licensing, customs valuation, and performance standard procedures.

It remains to be seen whether the new subsidies code can be enforced so that unfair trade advantages created through the use of subsidies, especially in markets for grains, can be eliminated. Given the inherent efficiency of its agriculture, the US will have far more to gain than lose from the reduction of trade barriers in a number of markets. Overall, agriculture is expected to benefit more from the reduction of specific nontariff barriers than from tariff concessions. Estimates are that the benefits to the US from the concessions may be equivalent to an increase in the value of total output of $1.0–$1.5 billion per year in current prices.

Developed-developing country relations are likely to be a central concern of trade policy in the 1980s. A widening of the split between developed and developing countries could tempt the developing countries to establish the UN Conference on Trade and Development as the future major trade policy forum, supplanting GATT.

There is considerable fear that with high levels of inflation, lingering recessions, and balance-of-payments deficits, the benefits of restrictive trade measures will become irresistible to governments in both advanced and developing countries. The developing countries fear that access to industrialized country markets for their products will continue to be limited.

Unsettled Issues. Notwithstanding the gains in trade liberalization, there is room also for improvements in several areas: (1) further reductions of tariffs by industrialized countries; (2) more progress in removing specific quantitative restrictions; (3) resolution of the rules on emergency safeguard action against disruptive imports; and (4) clarification of GATT rules, especially on dispute settlement including definition of the role of the GATT secretariat in this process.

A major failure of the multilateral trade negotiations was its inability to reconcile divergent views on the rules of emergency or escape clause actions against disruptive imports. Under the present GATT system a nation may only restrict imports of a product on an across-the-board basis from all foreign suppliers instead of just the country disrupting the market. However, this rule was in the

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Table 2. Percentage Reduction of 10 Markets' Tariffs Combined Assessment for Products of Interest to Developing Countries

	Calculated on the weighted average	Calculated on the simple average
Industry (excluding petroleum)	26%	37%
Raw materials	59	32
Semimanufactures	27	32
Finished manufactures	24	39
Agricultural tropical products	12	7

Source: GATT, Press Release, GATT/1234 (Geneva, 12 April 1979), p. 8.

past largely evaded by euphemistically termed "voluntary export restraints."

Developing countries feel that their needs and interests received less attention than desirable at the multilateral trade negotiations. The results not only fell short in correcting the unfavorable trading position of the developing countries but also in ensuring improved access to markets for their exports. In particular, tariffs were neither reduced on all products in which they have an interest, nor were tariff cuts deeper than those to which the general formula was applied (Table 2). Also in the areas where the developing countries have achieved substantial export potentials, such as textiles and footwear, restrictions by industrial countries have not been mitigated. It should be noted, however, that the lower-than-average overall cut in tariff rates is due, in part, to reduced rates already applied on products eligible for the generalized system of preferences.

Summary and Conclusions

The key issues in negotiations centered on the gaining of an improved international framework of rules and procedures for conduct of world trade. Improved access to markets was sought through the reduction of tariff and nontariff barriers. The agreements in relation to tariffs provide for a one-third reduction in the level of industrial tariffs and for a 41 percent reduction of agricultural tariff rates on products on which concessions were exchanged. The US is committed to reduce by 31 percent its industrial tariffs, the EEC by 27 percent, and Japan by 28 percent.

Although the size of tariff cuts appears substantial, the value amounts to the cuts are relatively small. Moreover, most will be phased in over eight years beginning 1 January 1980. In the case of sensitive products such as textiles and steel, the tariff reduction program will begin later in 1982. Therefore, trade expansion will be a gradual process without any major and abrupt impact on production and employment.

The US received concessions in the form of reduced tariffs and nontariff barriers on $4 billion of agricultural exports. It has won greater access to Europe and Japan for its high-quality beef, pork, poultry, meat, tobacco, citrus fruits, and oilseeds. Concessions extended by the EEC cover US agricultural exports of $970 million and those made by Japan are $1.3 billion. In exchange the US gave concessions on agricultural imports valued at around $2.6 billion. These concessions involved beef, lamb, meat, live cattle, inedible molasses, fruits, vegetables, and the raising of import quotas on certain cheeses. Eventually, US agricultural exports are expected to increase by some $510 million annually as a result of trade concessions made during the Tokyo Round. Concessions by the US are worth about $106 million annually. Thus, the net improvement in our agricultural trade balance from the Tokyo Round may amount to a modest increase of about $400 million (1976 values).

On nontariff barriers, the new codes of conduct covering a wide range of measures could turn out to be the most significant achievement. In particular, they are capable of doing much to remove or reduce and to bring under continuous surveillance and control a number of the most trade-distorting nontariff measures.

A major failure of the Tokyo Round was the inability of participants to reach agreement on the use of safeguards under which imports that threaten a domestic injury can be temporarily restricted. Overall the results of the multinational negotiations are less substantial than was initially expected, partly because of modest progress on agriculture and on a number of nontariff barriers. Trade in beef and dairy products is to be regulated by international consultative arrangements under GATT. It was not possible to reach an agreement in the cereal sector. The Tokyo Round is only a beginning in dealing with complex protectionist measures likely to persist for many years to come.

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The Gold Coin Standard: What It Is and Why the US Should Return to It

DONALD L. KEMMERER

The dollar has lost 85 percent of its buying power since 1933 and over half since 1967. In just the past year the dollar has depreciated at about a 13 percent rate which, if continued, would mean that it would buy only half as much in 1985 as it did in 1979. Most other nations are suffering worse or at least as bad inflations: Germany, Switzerland, and Austria are among the few exceptions. The world has never seen such widespread serious inflation in peacetime unless it was in the years right after World War I. Twice in those years, at Brussels in 1920 and at Genoa in 1922, top treasury and central bank officials of most of the world's major countries met and voted overwhelmingly in favor of returning to the gold standard at the earliest practical moment. In those times the gold standard was regarded as one of mankind's most successful financial achievements. Even economist John Maynard Keynes was of that belief.

The Brussels and Genoa conferees were simply accepting a long-recognized cure for inflation — restoring confidence in the nation's money unit by making it convertible on demand into gold. Everyone knows that gold holds its value very well. Although a nation does not return to gold overnight in the way countries leave gold, because some preparatory steps are essential, nonetheless the return can be made expeditiously. When a people and their government want to do it, they can, and without great pain. There will be greater pain if they do not return. The desire is what counts most. The monetary history of such returns during the past two centuries bears out that statement.

Professor Donald L. Kemmerer taught economics courses, particularly economic and financial history, at the University of Illinois from 1937 to 1973, when he retired. He was president of the Economists' National Committee on Monetary Policy, 1967–70, and since 1970 president of the Committee for Monetary Research and Education. Throughout his teaching career, which began at Lehigh University in 1934, he has emphasized that government deficit financing was the major cause of inflation and a return to the gold coin standard the best way to prevent inflation.

Recently there has been growing talk that the United States should consider returning to the gold standard which, after 1933, economist fashion-setters looked upon with contempt as a crude monetary standard. Lord Keynes then called gold a "relic of barbarism." But in view of what paper money inflation has been doing, many persons are beginning to say that paper, not gold, is the barbaric standard.

Ask almost anyone today just what the gold standard is and you will get a sloppy answer containing some mistaken ideas. That is not surprising because a person has to be reasonably mature to understand the gold standard and to appreciate its merits and limitations. Nobel Prize-winning economist Paul Samuelson once pointedly remarked that whenever he heard someone praise the gold standard, he noticed that that person was at least 70 years old. Dr. Samuelson himself was 18 when this country was last on a real gold standard. Seven persons out of eight today either were not yet born or, like Samuelson, were just growing up when the United States left the gold standard in 1933.

So what is a gold standard? In a gold standard the money unit, whether the dollar, pound, franc, or something else, is a fixed weight of gold in terms of which prices, wages, and debts are all stated and into which bank notes and bank deposits are convertible on demand. In the 1900s, when the United States was on a gold coin standard, the American government said in essence "We declare a troy ounce of gold is worth $20.67. If you have gold in any form, whether nuggets, old jewelry, gold leaf, used false teeth, whatever it is, bring it to us and we will make it into gold coins for you at a very nominal charge. When you have your gold in money form, or else have taken a check for it, you can spend it. Contrariwise, if you have dollars or checking accounts, and feel that if you convert these into gold coins and then export or

The Law of the Sea in Illinois? *By John Kindt* / *Page 10*

melt those coins, you will be getting more for your gold that way, we will give you the coins and you may go ahead." There was a free market for gold between the people and their governments across most of the world. Gold was accepted as money almost everywhere.

People, however, were not going to go to the trouble of melting down coins or exporting gold unless a seriously adverse balance of payments had developed. That is generally the result of a rise in prices owing in turn to an undue expansion of the supply of money and bank credit. But if many people did demand gold, it was a sign, like a burnt-out fuse in the house when there is an overload of electric current, that the central bank or big banks should discourage further credit expansion. Or it could be a warning sign to the Congress and the Treasury to restrain their spending propensities.

There are three classes of gold standard, de luxe, cabin, and economy, so to speak, although those are obviously not their names. I shall discuss them in reverse order, the economy first. That is the gold exchange standard, usually adopted by countries which feel they are too poor to afford either of the other ones. Essentially a gold exchange standard country has a running bank account with the central bank of a gold coin or gold bullion standard nation. In the recent past this system was mismanaged, worked badly, and thus gained a poor reputation. It can work well and did before World War I.

The gold bullion standard has been defined as a gold standard in which the only "coin" is a gold bar of, say, 400 ounces. When Great Britain was on this standard, 1925–31, a 400-ounce bar was worth about $8,300. At this writing at a price of $600 an ounce, that much gold would bring about $240,000. The purpose of the gold-bullion type of gold standard is also to economize on gold. Citizens have the right to own gold but not many individuals are likely to hold such large "coins." Several nations used this standard in the 1920s.

The de luxe form is the gold coin standard which many countries had prior to 1914, which the United States had until 1933, and to which the United States and other major nations should contemplate returning. The gold coin type has a rarely discussed, perhaps little realized, advantage. Once the gold coins are in circulation it is difficult, embarrassing, and costly to call them back. That is an *advantage* because it obliges the administration in office to reflect carefully before letting itself get into a situation where an anticipated devaluation would make it necessary to call in these gold coins. The potential embarrassment, if not worse, is therefore a safeguard for the people whose savings and contracts are expressed in those dollars. President Franklin D. Roosevelt was able to call in the gold coins in early 1933 because the public did not suspect what his administration had in mind. But it will be a long time before another American president can engineer a coup like that.

The great advantage of any gold standard is that there is a limited amount of gold in the world whereas paper bills or checking accounts can be produced, by governments at least, with a turn of the hand or a scratch of the pen. That puts producing gold in the same league as manufacturing automobiles, tailoring suits, or performing surgery, whereas government creation of paper money and bank deposits is more in a category with rubbing Aladdin's lamp or hijacking a Brink's truck, that is, daydreams and robbery.

Very little gold is permanently lost. It may be stolen or melted down but it is rarely lost. The world's present supply is the accumulation of the ages. The gold in your wristwatch may once have been in the basin in which Pontius Pilate "laved" his hands. Approximately half the world's gold, it was said in the 1930s, is in coins or in ingots held by central banks and the other half is in religious art, jewelry, and true industrial uses (small). In periods of inflation a disproportionate share of the gold mined will go into jewelry and personal hoards as people lay away some of their capital in this and other traditional "stores of value." For example, in 1961–70 gold production in the free world was 428 million ounces, or $15 billion at $35 per ounce, yet only 5 percent of this went into the world's stock of *monetary* gold, according to the *Federal Reserve Bulletin*.

The supply of gold has greatly increased in the last 130 years because of the great gold discoveries in California and Australia in 1848–53, in South Africa and the Klondike toward the end of the century, and as a consequence of the invention of hydraulic mining and the cyanide process of refining which made lower grades of ore commercially practical to work. Robert H. Ridgeway of the US Bureau of Mines estimated in 1929 that 1.004 billion fine ounces had been mined, 1493–1927. If one adds .2 billion ounces for the period prior to 1493 and about the same for 1928–35, the total at the end of 1935 was 1.4 billion fine ounces. Slightly over that much again has been produced, 1936–79 (see Chart 1). For trivia lovers a cubic inch of this compact metal weighs 10 ounces. The world's all-time production of gold would thus form a cube only 57 feet on a side, small enough to fit into many a theater or lecture hall.

In the past two centuries there has been need for more gold to be used as money due to the rapid industrialization of the more advanced countries which contain a third of the world's population. During some of those years a few nations have had a rapid economic growth although two-thirds of the world's population lives at or little above the subsistence level. The US

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World Gold Production
in Selected Periods, Antiquity to 1979
(in millions of fine ounces, troy)

Time indicated	Amount	Cumulative
Antiquity	50	
1 A.D. to 1492	150	200
1493 to 1845	155	355
1846 to 1890	236	591
1891 to 1935	810	1,401
1936 to 1979	1,561	2,962
(Communist Bloc	400	3,362)

Sources: US Department of Commerce, Economic Paper 6, Summarized Data of Gold Production (Washington; US Government Printing Office, 1929); W. J. Buschau, The Measure of Gold (South Africa: Central News Agency, 1949), p. 150; and Roy J. Jastram, The Golden Constant (New York: Wiley, 1977), pp. 221-25. Pre-1493 and Communist Bloc figures are my estimates.

Bureau of Economic Analysis estimates a 3 percent economic growth rate for this nation, 1910–70 (US Department of Commerce, *Historical Statistics, 1975,* Vol. 1, pp. 226–27). This is obviously well above the economic growth rate for the world as a whole. Meanwhile gold output, 1846 to 1979, using a known 1493–1845 accumulation as the base, that is, 155 million ounces, doubled on the average every 45 years; it grew at an annual rate of 1.55 percent (see the table). True, that is total gold production, half of which normally may go into nonmonetary uses, especially in times of inflation, but in periods of more stable prices much of this gold will surface again because the owners then seek income on their liquid capital, not mere capital preservation which they then take for granted. It is also noteworthy that, with experience, astute central bankers, such as the English became, can operate with a gold reserve as low as 5 percent, whereas inexperienced Russians in 1900 gingerly adopted the gold standard with a reserve of 105 percent. The fact that gold production's rate of increase is slower than the economic growth of major industrial nations can be a problem in the long run only *if* all major nations adopt the gold coin standard *and if* most of them are slow learners of the art of central banking.

When a nation is on a gold coin standard, the government cannot operate for long at a substantial deficit without an outflow of gold taking place, which in turn brings about a contraction of credit available for private investment and alerts those sensitive to financial signals that there is danger ahead. The central bank and Treasury and Congress are thus warned that they must reduce spending or face the humiliation of having to suspend the operation of the gold standard and probably precipitate a panic. The gold standard is a highly useful protective device.

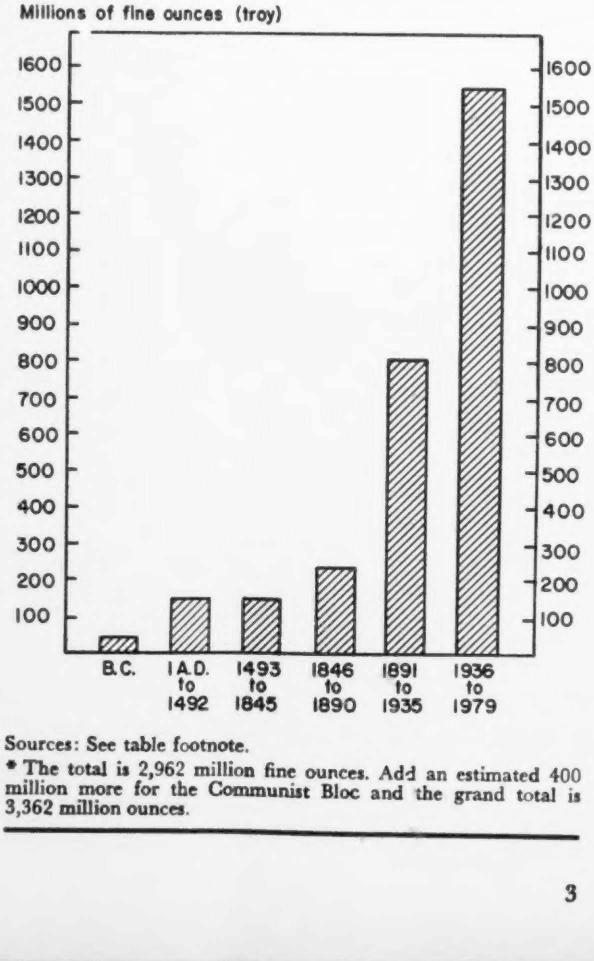
There is a timeless saying, "We have gold because we cannot trust governments." Gold has been used as money at least as far back as the sixth century before Christ in Lydia and Persia in Asia Minor.

For a money standard to be a gold standard in modern times it must meet five requirements: (1) the money unit must be a fixed weight of gold; (2) there must be freedom for anyone to bring gold to the mint to be coined (there will probably be a nominal charge, brassage, for the alloy to harden the coin); (3) there must be freedom to melt down or export the gold; (4) all other monies of the nation must be convertible on demand into gold coin; and (5) gold is legal tender for all debts, public and private.

It might be added that although gold serves as a legal reserve for other monies, that reserve has rarely been 100 percent. In the US in December of 1927 gold was 18 percent of currency and demand deposits. Gold coins in circulation were about 8 percent of the money in circulation although many of those coins were in family hoards. Nonetheless one frequently saw gold pieces.

This modern gold standard had its beginnings by accident in 1717 in Great Britain. Legally Britain was on a bimetallic standard, that is, the guinea then a coin (21 shillings) was 118.65 grains of gold, declared equiva-

*Chart 1. World Gold Production, Selected Periods, Antiquity to 1979 (noncumulative)**



Sources: See table footnote.

*** The total is 2,962 million fine ounces. Add an estimated 400 million more for the Communist Bloc and the grand total is 3,362 million ounces.**

lent to 1,858 grains of silver, which means that the government considered gold to be 15.66 times as valuable as silver. This ratio overvalued gold and undervalued silver and that in time drove the silver out and put the nation, in effect, on a gold coin standard.

The United States adopted the bimetallic standard in 1792 but in 1834 changed the mint ratio of the two metals so that gold was overvalued here also. Thus in practice the United States was on a gold coin standard for most of the ensuing century, 1834–1933, except for some bank suspensions before the Civil War, the long suspension of 1862–78, and that of World War I, 1917–mid-1919.

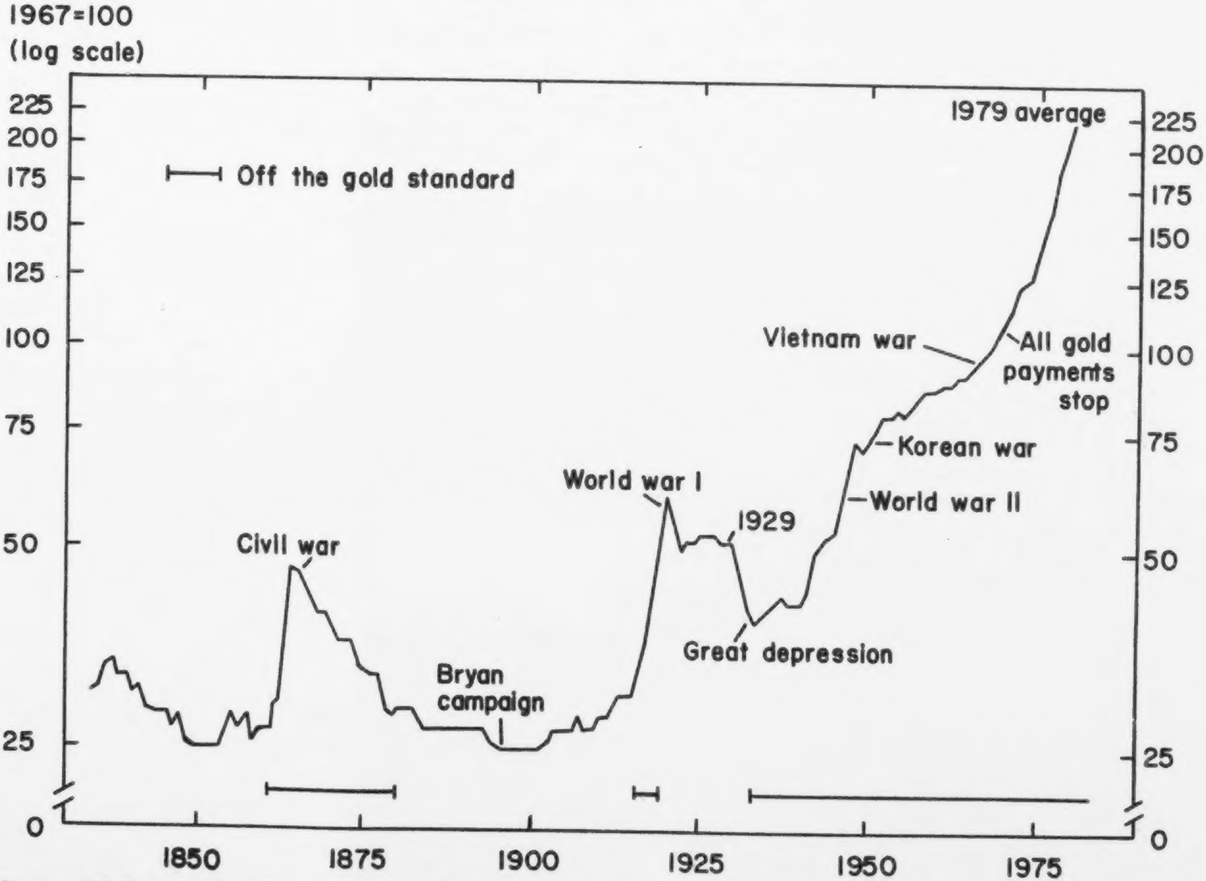
By 1873 there were nine nations on the gold standard and by 1912 there were 41. All left the gold standard in World War I but as soon as that war ended, countries, one after another, also adopted the trusted standard until in 1930 there were again over 40 on it.

The Great Depression, like World War I, swept the world once more off the gold standard but in the case of the Depression the abandonments were often accidental or for mistaken reasons. Britain left it on 19 September 1931 and was immediately followed by the gold exchange standard nations dependent on her. The United States left it in the spring of 1933 when the government placed an embargo on the export of gold and called in all gold coins and gold certificates. Various small nations dependent on the US gold standard also left it. There remained only six Western European countries on gold and the last of these, France, abandoned gold in 1936.

Meanwhile on 31 January 1934 the US went on what has been called a "qualified gold bullion standard" but really was not a gold standard at all. Under it foreign central banks and treasuries might demand and receive gold for dollars and dollar claims. There was convertibility available to foreign governments but not to foreign firms or individuals and there was no convertibility of dollars to anyone or any institution within the United States. American citizens even lacked the right to hold or to export American gold coins. This "qualified" standard did not meet the requirements of a true gold standard.

The gold *coin* standard that the United States had

Chart 2. US Consumer Price Indexes with the Nation On and Off the Gold Standard, 1834–1979, BLS 1967 = 100



Sources: US Department of Commerce, ***Historical Statistics,*** Vol. 1, pp. 210–11; ***Federal Reserve Bulletin,*** 1976–79, seriatim, Table A-51.

up to March 1933 and other major nations had before 1914, provided those nations with a reasonably stable price level. True, there were periods of mild inflation and mild deflation, seldom exceeding 4 percent a year, and the public complained about them, but the consumer price indexes in 1834 and in 1933 were not far apart: that of 1834 was 30 and that of 1933 was 39 (1967 = 100), a 30 percent rise over a century. See Chart 2.

In contrast, in the less than half century since 1933, the price level has risen almost sixfold and no one in his right mind expects ever again to see coffee at 5 cents a cup, letter postage at 3 cents, and gasoline at 15 cents a gallon. Federal government deficits have become a way of life — only five surplus years in 46 years — and inflation is regarded as an "Act of God" or at least of the oil sheiks, which we can do nothing about.

If Congress would balance the budget and return the nation to the gold coin standard — each step would help the other — this runaway ride to disaster could be brought to a halt. Such acts would flatten the price level again. As Chart 2 shows, the price level under the gold standard was rarely stable but also it took many years either to rise or fall by as much as 50 percent. The gold standard is not perfect but it is far better than the fiat paper money standard in operation since 1933, under which the price level now doubles every 6 to 10 years.

The American people would derive many advantages from having the kind of price level that the gold standard provided in the past. Their life savings would no longer melt away like ice on a hot July day. A pick-up in the rate of savings would stimulate capital investment and that in turn would tend to reduce unemployment and raise the standard of living. With more stable prices would come lower interest rates and a recovery of the housing business. Manufacturers would regain some of their foreign markets. One might anticipate many other improvements, economic, sociological, and political. Most of the justification for strikes would disappear. The crime rate which rises with the inflation rate might be expected to decline. Finally, a more dependable dollar could not help but improve the prestige of the United States, whose image has been suffering from the inflation of recent years.

We do not have to live this inflationary way.

1980: Another Sluggish Year

In evaluating economic prospects for the immediate future it is often sufficient to set forth a projection of the recent past. Certainly such a forecasting approach would have been adequate for much of the past decade. However, from time to time the performance of the economy departs from the path of the recent past; sometimes the economy shifts markedly.

It is tempting for an economist to permit the public at large to believe that he or she can offer reliable forecasts of the future. And this is frequently the case — especially if the future does not depart substantially from the past and if some latitude is given to the specific forecasted statistics. Indeed, there are a few economists who appear to be gifted in the early identification of a shift in trends, or in the prospective culmination of past economic forces. For most of us, however, the best we can offer are "stories" — cohesive descriptions of where we have been, with guarded remarks concerning factors likely to produce future change.

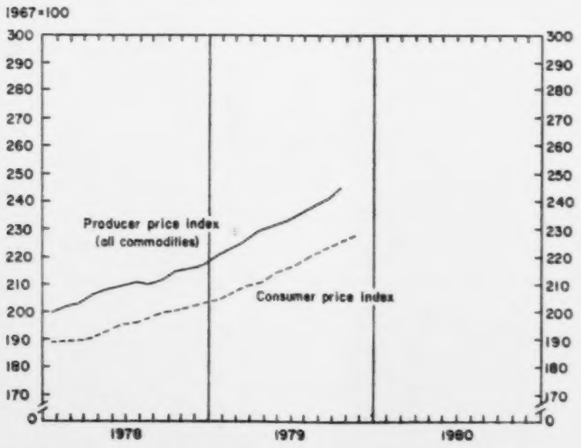
A Story for 1979

Last year can be usefully summarized in a discussion of three highly visible developments. The first was the acceleration in inflation; the second was the general weakening in the economy; and the third was the late-year shift in monetary policy.

Inflation Accelerated. The most visible economic development in 1979 was the acceleration in inflation. The acceleration was most pronounced in consumer prices generally, and, more specifically, in the price of energy. The best-known measure of the price level is the Department of Labor's consumer price index. According to this measure, prices rose nearly 13 percent last year. Prices rose 9 percent in 1978.

It is interesting to place recent price increases into historical perspective. In the 1969–79 decade, prices rose at an average annual rate of 7 percent. Thus, the price level approximately doubled in 10 years. By comparison, in the preceding decade (1959–69) prices rose 2.3 percent per annum. At such a rate of inflation it takes more than 30 years before the price level doubles. If last year's inflation rate persists, the price level will double in just over 5 years; or, put differently, the purchasing power of a dollar will be cut in half.

Price Indexes



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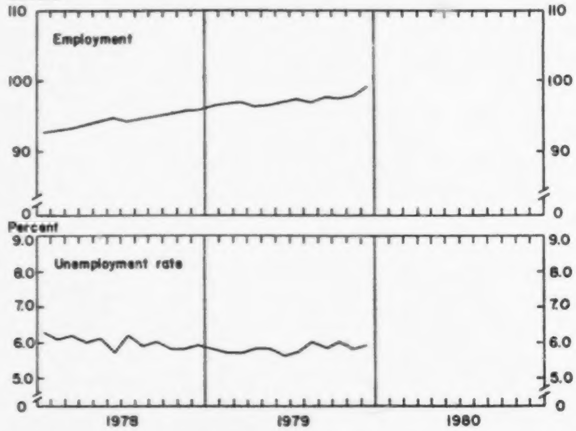
Employment and Unemployment Rate



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Much of last year's inflation for the consumer centered in prices of energy products. These prices — which include gasoline, motor oil, fuel oil, natural gas, and electricity — rose at more than a 40 percent annual rate. Prices of other consumer products rose at just under an 8 percent rate.

Another prominent aspect of last year's acceleration in inflation was the sharp rise in interest rates. After mid-year, interest rates bolted upward — surpassing highs attained in the fall of 1974. The prime rate — the rate of interest charged by banks to customers with unquestioned credit ratings — reached 15.75 percent in late November 1979. Interest rates are related to price increases through an *inflation premium;* lenders require higher interest rates to compensate them for an expected loss in purchasing power; borrowers are willing to pay more because they expect to repay indebtedness in "cheaper" dollars.

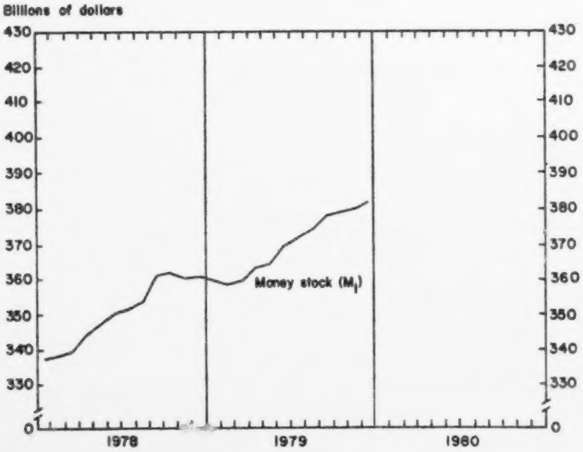
The Economy Weakened. A second visible economic development in 1979 was the softening in the general economy. Output growth virtually stopped; employment growth slowed; and the unemployment rate began edging higher.

Measures of economic output indicate that the economy was at a standstill last year. Real GNP — that is, gross national product adjusted for price changes — rose at less than a 1 percent annual rate through the third quarter of 1979. By comparison, real GNP had expanded at a 5.4 percent rate from the first quarter of 1975 (the final quarter of the 1973–75 recession) to the fourth quarter of 1978. The Federal Reserve Board's index of industrial production also stabilized last year. In contrast, during the period from March 1975 to December 1978 industrial output rose at an average annual rate of nearly 8.5 percent. Housing starts, another measure of physical output, dropped markedly last year — partly reflecting the sharp rise in interest rates on home mortgages.

It is noteworthy that economic activity did not decline in the face of the rapid rise in energy prices. Increases in energy prices have been identified as a major explanation for the 1973–75 recession. The sharp rise in the relative price of energy reduced aggregate supply. That is, businesses found themselves unable to produce profitably as prices of their raw materials rose. Although the general price level rose rapidly, overall supply shrank. It is possible to construe last year's output performance — no growth, but no major declines — as an indication that businesses are adapting to the recent inflationary environment. They are taking price increases in stride, with a view toward passing them forward to ultimate consumers.

Because productive activity failed to expand in 1979, there was a slowdown in the growth of employment. Total civilian employment, which rose just over 3.6 percent per annum from March 1975 to March 1979, expanded at about a 1 percent annual rate during the remainder of last year. As a result, the unemployment rate ceased the irregular downward drift that had begun in the spring of 1975.

Money Supply



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Monetary Policy Tightened. Monetary actions shifted to a restrictive stance late last year. After early October, money supply growth essentially stopped. In contrast, from March to early October of 1979 money exploded at more than a 10 percent annual rate. Indeed, during the entire period of economic recovery since early 1975 the money supply had risen at an average rate of 6.5 percent per annum. Historically, such increases in money are extremely rapid, but they are the story of the seventies. During the decade of the 1960s, money growth averaged 3.7 percent.

Of course, it is not certain that monetary growth will be moderate as 1980 unfolds. Nor is it clear at this writing that the economy would benefit from unusually restrictive monetary actions.

A Story for 1980

I expect the economy the remain sluggish throughout much of this year. Accordingly, the growth in employment will be insufficient to hold unemployment near its current level. That is, the unemployment rate will edge higher.

I expect the rate of inflation to moderate somewhat. Even so, it will remain high by historical standards. Thus, for example, price increases of 8–10 percent would constitute nearly a one-third improvement in the rate of inflation. While such an improvement would not be dramatic in itself, similar successive improvements over a 5-year period would return the economy to relative price stability.

Interest rate prospects depend upon what happens to inflation. An 8–10 percent basic rate of inflation is consistent with short-term interest rates of 13–15 percent. Thus, I do not anticipate a dramatic downward movement in interest rates — even if inflation slows moderately.

There are three major uncertainties within which a forecast for the remainder of the year must be framed. The first relates to the general world situation. At this writing, the US is faced with potential armed conflict in the Middle East and with an intensification of tensions with the USSR. How these matters will resolve themselves is, of course, unknown. The implications for the economy of a major military commitment can be staggering. The second uncertainty relates to the upcoming presidential election. It is simplistic to suppose that the Administration can, if it wishes, promptly move the economy to full employment to ensure an election. Even so, it is plausible to suppose that the temptation is growing for bold economic initiatives. Potential highly visible initiatives include price controls, rationing, tax cuts, and so forth. Finally, as suggested, the future course of monetary policy is unknown. In particular, how long the Federal Reserve will persist in moderating actions is problematical.

WILLIAM R. BRYAN

Comparative Economic Data for Selected Illinois Cities, November 1979

	Building Permits (000)		Electric Power Consumption (000,000 kwh)		Postal Receipts (000)		Employment (000)		Estimated Work Force Unemployed (percent)	
	Nov. 1979	% change from Nov. 1978	Nov. 1979	% change from Nov. 1978	Nov. 1979	% change from Nov. 1978	Oct. 1979	% change from Oct. 1978	Oct. 1979	Oct. 1978
ILLINOIS	$93,629[a]	-9.5	3,224.2[a]	-0.2	$60,071[a]	+9.7	$5,117.9	0.0	5.5	5.3
NORTHERN ILLINOIS										
Chicago	60,109	+8.5	1,557.9	-1.5	48,742	+12.3	3,281.9[b]	+0.7	5.3[b]	4.4[b]
Aurora	1,840	-71.9	140.5	+11.1	582	-3.9	38.4	+0.5	4.9	5.1
Elgin	1,274	-53.0	85.1	+0.7	628	-2.1	28.1	+0.7	5.6	5.1
Joliet	609	-85.4	366.7	+0.5	386	+16.2	47.0	+0.6	5.8	8.0
Kankakee	449	+25.0	74.4[c]	+6.8	244	-2.4	37.0[b]	-2.1	8.2[b]	4.1[b]
Rock Island-Moline	3,190	-66.8	123.3[d]	+17.0	1,366	+7.5	107.7[e]	+0.6	4.2[e]	4.6[e]
Rockford	2,999	-26.2	150.2	+0.4	981	+7.8	132.4[b]	+0.3	5.3[b]	5.0[b]
CENTRAL ILLINOIS										
Bloomington-Normal	3,574	-6.2	40.3	-11.2	832	-12.0	59.3[b]	-4.2	2.8[b]	3.2[b]
Champaign-Ur[illegible]na	1,364	-64.0	53.5	-3.7	599	-18.1	79.1[b]	+6.1	3.8[b]	4.2[b]
Danville	2,127	-36.9	44.2	+4.0	242	+1.2	19.0	-2.0	8.1	6.8
Decatur	1,825	+3,702.0	115.7	-6.2	488	-5.9	55.9[b]	-4.6	7.4[b]	5.8[b]
Galesburg	1,140	+80.3	30.1[c]	+3.4	158	+11.2	15.6	-6.5	6.6	5.6
Peoria	3,326	-23.2	148.9	-2.5	1,656	-6.4	170.7[b]	-0.2	5.9[b]	4.3[b]
Quincy	489	-52.5	39.3	0.0	229	+11.7	20.4	-3.3	5.2	5.7
Springfield	5,328	+60.3	106.8	7.1	1,907	+2.0	48.8	n.a.	6.7	5.6
SOUTHERN ILLINOIS										
East St. Louis	n.a.	n.a.	21.4	0.0	190	+7.3	23.0	+1.7	12.4	9.5
Alton	448	-7.6	73.6	-12.0	150	+12.7	15.6	+1.9	8.1	6.1
Belleville	359	-53.7	21.9	-7.5	352	+5.0	20.1	+2.0	5.3	4.0
Carbondale-Murphysboro	3,179	+401.4	30.4	0.0	339	+10.7	n.a.	n.a.	n.a.	n.a.

Sources available upon request.

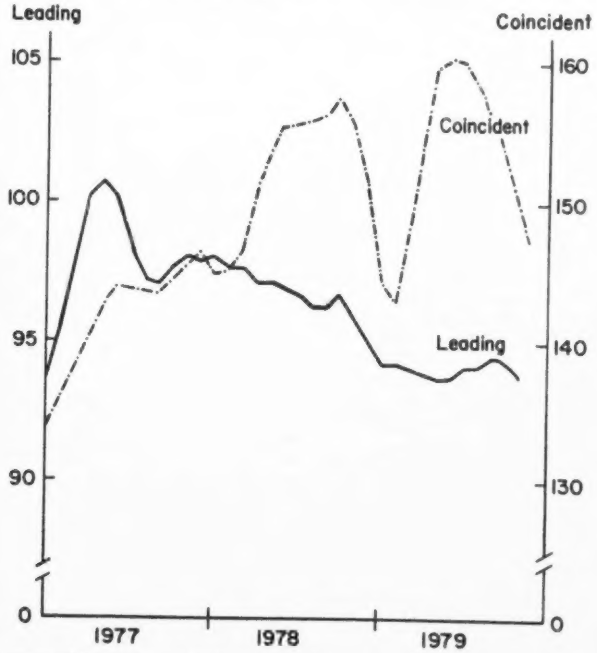
[a] Total for cities listed. [b] Data for standard metropolitan statistical area. [c] Includes immediately surrounding territory. [d] Includes East Moline.
[e] Illinois portion of Davenport-Rock Island-Moline SMSA. n.a. not available.

Illinois Business Indexes

Item	Nov. 1979	Oct. 1979	Sept. 1979	Aug. 1979	Nov. 1978
Leading indicator (1969=100)	93.1[a]	93.4[a]	93.9	94.0	96.0
Coincident indicator (1969=100)	148.3[a]	150.1[a]	152.8	156.0	155.8
Employment - manufacturing (in thousands)	1,157.5	1,183.1	1,240.5	1,239.1	1,249.5
Average weekly hours - manufacturing	41.4	41.0	41.5	40.9	40.3
Weekly earnings - manufacturing	$308.9	$303.4	$309.0	$301.8	$280.9
Layoff rate - Chicago	n.a.	0.7	0.4	0.5	0.4
Ordinary life insurance sales (in millions)	n.a.	$1,625.0	$1,347	$1,511	$1,307
Retail sales (in millions)	n.a.	$4,053[a]	$3,804	$4,027	$4,083
Coal production (in thousands)	5,017	5,916	4,597	5,535	5,736
Petroleum production (in thousands)	1,875	1,961	1,781	1,911	1,973
Vendor performance (percent)	n.a.	50	51	55	66
Building permits (in thousands)					
Residential housing units	n.a.	3.73	4.12	4.54	5.46
Value of residential housing	n.a.	$144,083	$157,410	$191,514	$216,624
Value of nonresidential housing					
Industrial buildings	n.a.	$45,160	$48,620	$39,031	$24,446
Office, banks, and professional buildings	n.a.	$58,630	$61,580	$59,559	$29,386
Stores and other mercantile buildings	n.a.	$35,404	$39,093	$27,375	$15,022
Other	n.a.	$52,316	$46,929	$111,924	$18,906
Consumer price index					
North Central US	-	122.6	-	120.3	-
North Central/population more than 4,000,000	-	123.2	-	121.0	-
North Central/population 385,000 to 1,250,000	-	122.3	-	120.5	-
North Central/population 75,000 to 385,000	-	121.9	-	119.0	-
North Central/population less than 75,000	-	122.0	-	119.5	-
Chicago	227.5	221.8	221.3	218.6	-
St. Louis	-	-	222.2	-	199.3
Farm prices	107	109	116	114	111
	1979:II	1979:I	1978:IV	1978:III	1978:II
Personal income (in millions)	$110,286	$106,920	$103,397	$101,587	$99,201

Sources available upon request.
[a] preliminary. n.a. not available

Illinois Economic Indicators



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The November Illinois leading indicator continues the downward trend to 93.14 but the rate has decelerated from last month's drop. The overall fall is from 94.02 in August 1979. Statistics for the most recent two months have been revised to include additional data. The indicator had been exceptionally level since the March 1979 value of 94.03 until August. As expected, building permits have fallen substantially with a 23 percent drop in one month. Both vendor performance and weekly hours are slightly improved from the October performance. Because of the present low level of building permits, further deterioration of the leading indicators is likely to be associated with employment factors and vendor performance.

The Illinois coincident indicator has dropped to 148.35 from 150.09 for October 1979 and from 160.42 for June 1979. This drop is due to the worsening of weekly earnings and total employment.

The Law of the Sea in Illinois?

JOHN KINDT

Most businessmen in Illinois may be inclined to think of the law of the sea as being remote from their interests. However, since Illinois exports a great deal of its heavy machinery and agricultural production, the law of the sea has direct effects on the State. Moreover, Illinois exports are transported via the Mississippi River and canal system, and via the Chicago, Great Lakes, and St. Lawrence Seaway system — all of which will be affected by forthcoming law-of-the-sea negotiations. These negotiations currently involve over 150 nations.

They constitute the largest multilateral negotiation in the history of mankind — substantially more countries are participating in the negotiations than did in those which resulted in the formation of the United Nations. The law-of-the-sea treaty which will eventually be forthcoming will establish the legal regime for almost three-fourths of the earth's surface.

The current negotiations have been officially delineated the Third UN Conference on the Law of the Sea (UNCLOS III). Since the first substantive session in 1974, UNCLOS III has generally consisted of two major sessions per year. The situs for the negotiations usually changes from session to session. The negotiations generally rotate the situs between New York, Caracas, and Geneva. During the interim periods, seven groups work toward establishing an eventual "consensus" at one of the regular sessions. Since voting on individual proposals would tend to polarize different interest blocs and tend to harden the positions taken by individual countries, a "gentleman's agreement" has been reached that there will be no votes taken until there appears to be an overall "consensus" by a majority of the nations involved in the treaty.

Since 1974, there have been four negotiating texts which have evolved: (1) the Informal Single Negotiating Text of 1975 (SNT); (2) the Revised Single Negotiating Text of 1976 (RSNT); (3) the Informal Composite Negotiating Text of 1977 (ICNT); and (4) the Revised Informal Composite Negotiating Text of 1979 (RICNT). The RICNT contains 304 articles dealing with several topics crucial to international commerce — and in particular to the maritime commerce of the US. The United States has continually pursued a policy of "freedom of the seas" to protect its commerce and national security (especially via the US nuclear submarine fleet). Most developed countries with large fleets have tended to support this policy. Even the USSR has adopted the policy. However, despite this impressive array of support it should be noted that the United States and the developed countries are generally a "minority" influence at UNCLOS III. In any event, the major areas covered by the RICNT include: (1) the territorial sea and contiguous zone; (2) the straits used for international navigation; (3) the archipelagic states; (4) the 200-mile economic zone; (5) the continental shelf; (6) the high seas; (7) the regime for islands; (8) the enclosed or semienclosed seas; (9) the right of access of landlocked states to and from the sea and the freedom of transit; (10) the area (deep seabed mining); (11) protection and preservation of the marine environment; (12) marine scientific research; (13) development and transfer of marine technology; and (14) the settlement of disputes. Simply defining these different terms would be beyond the scope of this article. Therefore, I shall concentrate on a few issues which demonstrate the importance of the law-of-the-sea negotiations to the businessmen of Illinois (and the whole United States).

John Kindt is assistant professor in the Department of Business Administration, University of Illinois at Urbana-Champaign. His specializations are corporate law and international law, and his current research is concentrated in the area of the "law of the sea." The research is conducted as part of the activities of the Center for Oceans Law and Policy, which is situated at the University of Virginia Law School. The Oceans Center advises the US Delegation to the Third United Nations Conference on the Law of the Sea, the largest and most extensive international conference ever held.

Territorial Seas and Economic Zones

The current treaty provides for a 12-mile territorial sea (with a contiguous zone stretching farther out to sea) to be included in a 200-mile economic zone. There has been a strong trend by the less developed countries (LDCs) participating in UNCLOS III to extend their coastal jurisdiction progressively farther out to sea. Certain South American countries have been even declared 200-mile "territorial seas" (compared with the 3-mile territorial seas claimed by the US). Theoretically, the extension of jurisdiction by the LDCs could turn the Gulf of Mexico into a lake controlled by the LDCs, since all US shipping might be forced to stay within its own territorial waters or become subject to "tolls" by the LDCs. Naturally, the control of ingress and egress to the Gulf of Mexico by the less developed islands and Cuba would result in expensive detours, tolls, and fines. The cost of shipping would become enormous and perhaps onerous.

The St. Lawrence Seaway would be an even more blatant example of how coastal state "creeping jurisdiction" could disrupt commerce. Although Canada and the United States have basically worked out the boundaries along the Great Lakes and the St. Lawrence Seaway, there are still minor boundary disputes. A law-of-the-sea treaty favoring extension of jurisdiction around islands would disrupt the waterborne commerce of the United States in this area. It might be argued that

Canadian commerce would also be affected, and the two nations would then negotiate to a reasonable compromise. However, the UNCLOS III provisions may seriously hamper the negotiating position of one of the countries. Even as an "industrialized" country, Canada has already evidenced a strong tendency toward favoring extension of coastal state jurisdiction by unilaterally claiming a 100-mile zone of "environmental protection jurisdiction," which in effect restricts the entire Northwest Passage area. This action by Canada adversely affects not only US maritime commerce, but also US security interests.

Narrow Straits

The types of problems that arise become even more apparent if the narrow straits are examined. For example, if the Strait of Gibraltar were sealed off, the Mediterranean would become a lake controlled by those countries controlling the strait and the Suez Canal. During the 1973 Yom Kippur War, this problem was highlighted when Spain (and other Mediterranean countries) refused the right of overflight to United States planes taking arms to Israel. Another example is the Strait of Hormuz between Iran and the Arabian Peninsula. Over 50 percent of the world's oil passes through this strait each day. Tolls and/or fines could theoretically be levied against each ship passing through the strait. In fact, the primary shipping routes for oil tankers going to the US all pass through the jurisdictions of several LDCs and each LDC could hypothetically levy a toll and/or fines against each ship, and thereby further increase the price of oil. Since allegedly the cost of energy in Illinois is already the highest (or among the highest) in the United States, every increase in the price of oil is of vital concern to Illinois businessmen.

To dismiss these hypotheses as unrealistic is both myopic and dangerous. The LDCs believe that they have the inherent right to a redistribution of the world's wealth from the developed countries to the LDCs. The LDCs have even established a "New Economic Order" within the United Nations system which has made it an overall policy of the United Nations to effectuate this redistribution. Even such UN conferences as the 1972 Conference on the Human Environment placed strong emphasis on the redistribution of wealth. It should be noted that for the past decade the UN General Assembly has been dominated by the LDCs via their political interest bloc, popularly known as the Group of 77. While retaining its traditional name, the Group of 77 now consists of approximately 100 countries, and as a power bloc, it dominates the entire UN system, including UNCLOS III.

Deep Seabed Mining

The power of the Group of 77 has been recently demonstrated with regard to the deep seabed mining provisions being negotiated at UNCLOS III. Although there has been a great deal of "creeping jurisdiction" in the provisions incorporated within the RICNT, the freedom-of-the-seas concept has been generally retained in a form acceptable to the US; that is, the problems of LDCs' restricting transit through narrow straits and otherwise restricting maritime commerce have been compromised to where the US can still accede to them. However, the Group of 77 has imposed onerous deep seabed mining provisions on the developed countries (including the US) which are totally unacceptable. Several US senators have advised President Carter that they will vote against any law-of-the-sea treaty which retains the burdensome deep seabed mining provisions found in the ICNT (and by implication, the new RICNT). At the risk of being simplistic, the Group of 77 has basically advised the developed countries that the LDCs are going to get most of the wealth of the oceans via the current RICNT provisions, which are in accordance with the "New Economic Order" adopted by the UN system. Any attempt by the developed countries to alter substantially the current regime will result in the opposition of the Group of 77 to the rest of the treaty, especially those provisions maintaining "freedom of the seas." It should be remembered that in any "vote" the Group of 77 would have a clear majority.

The well-publicized manganese nodules are the primary resource involved in the deep seabed mining issues because technologically they can probably be recovered from the deep seabeds within the near future. The estimates of the worth of manganese nodules vary a great deal, but the potential profits are in the millions. According to a recent study by the Massachusetts Institute of Technology, current plans call for a combination vessel/mining facility costing $500 million (in 1977 dollars). Estimates for the entire mining and processing facilities range from $300 million to $600 million. Assuming a 48 percent tax, total profits from a 25-year project have been estimated at $1.5 billion. More important, there are a multitude of other nonliving (including oil and gas) and living resources in the oceans, which are worth billions of dollars.

Conclusion

It should be remembered that maritime transportation for commercial and military purposes is crucial to the United States. In conflict situations, history has revealed that the nation or coalition which controls or subsequently gains control of the oceans, always emerges as the dominant power.

The oceans also constitute the sine qua non of life on earth. They supply 71 percent of the world's oxygen, and their ecological stability is much more delicate than their vast areas would suggest. The oceans constitute a total resource system affecting climate, rainfall, radiation, cloud cover, and the movement of winds and tides. Modifications in the ocean environments, such as the disastrous Pemex oil well blowout in the Gulf of Mexico (not necessarily all on the surface of the water), which was followed by one of the worst hurricane seasons ever to be recorded in the Gulf of Mexico, gives rise to an interesting international legal question. If scientists could establish a nexus between the two events, the interna-

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tional legal ramifications (to say nothing of the political ramifications) would be enormous. Without exploring the multifaceted questions to which this hypothesis gives rise, the general trend of international environmental law, including the marine pollution provisions of the proposed law-of-the-sea treaty, would tend to impose liability on the country generating the pollution.

Regardless of the eventual disposition of these types of issues, the importance of the oceans has been demonstrated. Business and law are no longer purely domestic or purely international in character; the rapid technological progress in communication and transportation has made the world too small. Corporations and governments have become so large and pervasive that, by definition, they influence the international sphere by whatever action they take. Conversely, international events and legal developments must necessarily affect the business environment. A recognition of the interrelationships between government, law, economics, and business is essential to even the smallest Illinois businessman. As an overused but obvious example, every businessman is directly (and indirectly) affected by every change in the worldwide status of oil. Similarly, international legal developments such as in the law of the sea are going to impact upon domestic as well as international businessmen. Since overall analyses of worldwide impacts upon business are becoming more essential each year, the good businessman acts as a "strategic manager" by analyzing the domestic and international impacts upon his business interests and adjusting or adopting his business interests accordingly. Regardless of whether the law-of-the-sea treaty is eventually adopted, its provisions have already become a part of international customary law. The strategic manager needs to be alert to this international development which is determining the legal regime for almost three-fourths of the earth's surface.

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Grain Embargo—Widespread Economic Incidence

JAMES R. MILLAR AND SUSAN J. LINZ

Forecasting the economic incidence of the 1980 grain embargo is complicated by several factors. Clearly, a prolonged embargo will be difficult for the Soviet Union to offset, since the US dominates world grain markets. The total economic impact of the grain embargo, however, will depend upon how long it is enforced by the Carter Administration, how effective the longshoremen's embargo becomes, and the role of other grain-producing countries in reducing the Soviet grain deficit.

Who will bear the economic burden of the grain embargo is further complicated by the uncertainty surrounding US and Soviet policies regarding the embargo. The current grain embargo was declared with what appears to be no prior plan for disposing of the surplus grain. There are, however, at least two options available, but each has a significantly different consequence. One option involves government purchase of the grain (which increases the budget deficit) to stockpile for future use or put into highly subsidized gasohol production. This would most certainly have an adverse effect upon inflation or taxes. Alternatively, if market forces were allowed to operate, the excess supply of domestic grain would tend to lower the price of grain-related products, such as meat, in the US. Farmers could be directly compensated by cash subsidies to offset the lower grain prices.

Soviet economic policy in response to the grain embargo will most likely depend upon the size of their current grain inventories, about which there is little certain information. The economic incidence of the embargo will also depend upon how Soviet decision-makers react to the embargo in the long run. Should they decide that dependence upon the US for significant grain imports is undesirable in the future, the outcome will differ substantially from what could be expected as a reaction to a short-term shortfall in grain availability.

In spite of the uncertainties surrounding the nature of US and Soviet economic policies, something can still be said about the nature and probable impact of the embargo. The short-run effects of the grain embargo in the US will most likely be sharp, immediate, and highly focused, while the impact in the USSR will be over the population at large and over time. In a longer run, the economic impact may affect US comparative advantage adversely in agricultural products, but there is no comparable long-run effect upon Soviet agriculture.

James R. Millar is professor of economics, and Susan J. Linz is a graduate student at the University of Illinois at Urbana-Champaign. The section, "Impact on Soviet Economy," is based primarily on testimony by Mr. Millar before the House Permanent Select Committee on Intelligence 24 January 1980.

Impact on Soviet Economy

Soviet dependence upon world markets for grain has been a relatively recent phenomenon. Soviet planners have relied significantly on US grain imports since 1975 to counter weather-related fluctuations in domestic grain output and thereby to improve the diets of the 265 million Soviet people. They began to import grain in quantities only in 1963. Grain imports have primarily been used to increase the rate of growth of livestock herds, allowing Soviet meat consumption to reach about 60 percent of US levels. The initial impact of the current grain embargo for the USSR will most likely be in reduced size of livestock herds, with the impact disproportionately upon the hog and poultry populations.

The Soviets entered the international grain market as a significant purchaser in 1972. Since then, they have become a major customer for US agriculture. US agriculture exports to the USSR totaled $1.8 billion in 1978, with grain sales representing nearly $1.5 billion.

The spirit of détente and US concern about wide fluctuations in world grain prices caused by Soviet intermittent large grain purchases led to negotiation of a 5-year trade agreement with the USSR in 1975. The trade agreement guarantees annual Soviet purchases of wheat

Just How Big Is Illinois State Government? *By Richard Kolhauser* / *Page 9*

and corn of 6 million metric tons, and allows the Soviets to purchase up to 8 million tons without special permits. Bilateral negotiations for units in excess of the 8 million tons are also provided for by the 1975 trade agreement. This year the Soviets planned and, prior to the embargo, were permitted by the US to import up to 25 million metric tons of grain to help compensate for the 49 million ton shortfall in Soviet grain production in 1979. Grain imports from the US for this year, then, would have been approximately equal to three-fourths of total planned Soviet grain imports.

How much of a deficit will the current embargo represent? President Carter has embargoed 17 million metric tons of grain. Some 3 million tons may, however, be purchased for resale to the USSR by her allies. The longshoremen's unofficial embargo may detain an additional 4 million metric tons, if sustained. The Soviet grain deficit also may be offset somewhat if Argentina succeeds in increasing its sales to the USSR by a million or so tons. A conservative estimate of the net reduction in planned Soviet imports for 1980, then, is about 12 to 15 million metric tons. This quantity represents almost 12 percent of Soviet grain requirements for livestock fodder, or between 6 and 8 percent of world grain turnover in recent years. Alternatively, 12 to 15 million metric tons approximates the total current annual grain (nonrice) exports of either Argentina, Australia, South Africa, Canada, or France.

One way to assess the potential impact of the grain embargo on the Soviet economy is to compare it with the last serious shortfall in Soviet grain production. The 1975 grain harvest fell 55 million metric tons short of the previous year's harvest, and 80 million tons short of the plan. By comparison, this year's harvest fell 58 million tons short of the 1978 harvest, but only 50 million tons short of the plan. The Soviet Union imported 26 million tons of grains in 1975–76 to help offset the harvest failure, and planned to import 34 million tons this year. The embargo, if as effective as expected, will restrict imports by about 17 to 20 million metric tons. The shortfall from plan will be about 30 million metric tons, as opposed to the postimport deficit of about 40 million metric tons in 1975.

The reaction of planners to the 1975 shortfall is relevant to current experience, therefore, but with three reservations. First, the current grain shortfall is less than the 1975 deficit. Second, 1975 was preceded by a relatively poor harvest year, whereas last year's grain harvest was the largest in Soviet history. Grain stocks were presumably stabilized by last year's large surplus. Third, the current grain shortage is a product of a relatively poor harvest year *plus* an embargo by the US, which may cause Soviet planners to be more cautious in setting livestock herd growth targets in the near future.

Soviet livestock herds declined by about 3 percent in 1975–76. The greatest change was in the hog population, which was reduced by 20 percent. Poultry numbers declined by 7 percent, and sheep and goat herds were reduced by about 3 percent. Beef and dairy cattle were maintained, but undoubtedly at reduced rations.

In a "good" to "excellent" crop year, a one-year embargo by the US on grain products would have little effect upon the production of meat and meat products in the Soviet Union. The potential effectiveness of the current US embargo rests upon the fact that the 1979 harvest is the worst since 1975. It is not, however, as poor an outlook as was the case in 1975, nor can the embargo reduce the situation to conditions as unfavorable as those of 1975. The situation following 1975, therefore, represents the upper bound of the deleterious one-year effect of an embargo. It is unlikely that livestock herds will be reduced by as much as 3 percent in response to the US embargo. The impact, as in 1975, will be seen primarily in hog and poultry populations, although it is difficult to determine just when this will become a measurable outcome.

In all likelihood, the economic impact of the grain embargo will be less than the impact of the 1975 harvest failure — unless the official embargo is sustained for several years. In either case, the impact will be noticeable to the Soviet consumer, for the long-run outlook is for longer queues for meat, eggs, and milk for the Soviet consumer. Another outcome may be a more autarkic outlook by Soviet planners. A third possible outcome may be more erratic and wider swings in world market agricultural prices, for the 1975 agreement between the US and USSR may very well not survive the current embargo. Indeed, negotiations for a new 5-year trade agreement need to begin soon to avoid a hiatus.

As a best guess, despite the grain embargo, the Soviet Union will probably manage to import about 24 to 26 million metric tons of grain on a net basis this year (as opposed to the 34 million that was planned), and it will most likely succeed in restricting all uses to approximately 208 million metric tons. The results will be an overall net deficit of about 10 to 12 million metric tons, which the Soviets will hope to recoup by means of a good 1980 harvest and/or increased imports from other grain-producing countries next year. Although the availability of meat will diminish in the near future, it is not expected that any radical change in Soviet economic priorities will ensue. The political consequences of a deficit in meat production are likely to be mitigated by the fact that these shortages were caused by restrictions imposed by the US.

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Impact on US

The skeptical attitude many US economists have taken toward the current embargo may reflect the fact that US-Soviet trade represents a text book example of the meaning of comparative advantage. Since both sides gain from trade where it is grounded in comparative advantage, it follows that both sides lose when trade is interrupted for noneconomic reasons. Trade with the Soviet Union since 1975, mainly because of our tremendous comparative advantage in the production of agricultural products, has been particularly welcome because it produces a large net surplus and has helped, therefore, to reduce our trade deficit with the rest of the world. Other areas where the US has a comparative advantage, for example, military hardware or space-related technology, cannot be as easily exploited, and certainly not with the USSR.

Economists are also skeptical of using the embargo as a diplomatic tool, since it clearly threatens to undermine the 1975 trade agreement, which was negotiated in order to minimize the adverse impact of the wide swings in world grain demand that resulted from fluctuations in Soviet output. Apart from the usual economist's distaste for political interference in free markets, the fact is that very little is known about the long-run effects of embargoes. It does appear, however, that embargoes are a good way to lose one's comparative advantage through import substitution or competitive alternatives. This would be particularly disastrous for Illinois, as a major supplier of agricultural products for export.

The US will experience a loss of foreign exchange that the grain exports would have generated, but the primary adverse economic impact of the embargo will be upon grain producers and those directly dependent upon them. To reduce the burden on the grain producers, the government must take immediate steps to redistribute the cost of the embargo over the US population at large by means, for example, of enlarging the budget deficit by $2.5 to $3 million.

Burden on Illinois

There is little doubt that the impact of the grain embargo upon Illinois will be noticeable generally and severe for the farm community. Illinois ranks first in the production of both corn and soybeans, producing nearly 17 percent of the total corn and soybeans grown in the US. Until 1978, when soybeans reached 33 percent of the total cash receipts, corn was the largest single source of farm cash receipts in Illinois.

Illinois is also the number one exporting state for feed grains and soybeans. In 1978 the US exported about $6 billion of feed grains and related products. Illinois supplied over 18 percent of the total and nearly 20 percent of all US exports of soybeans and soybean products.

Preliminary figures indicate a bountiful harvest of corn and soybeans in Illinois in 1979. Nearly 1.4 billion bushels of corn and 375 million bushels of soybeans were produced (38.4 and 10.6 million metric tons, respectively). The average cost of production per bushel for Illinois grain farmers ranged between $2.35 (central Illinois) and $2.65 (southern region). For farms between 600 and 2,600 tillable acres, this range has been relatively stable for the past few years.

The Illinois Department of Agriculture estimates that about one-half of the corn and soybean production is stored on the farm during the winter months. By early April, farm grain stocks are normally reduced to about 30 percent of the total production in the marketing year, and by fall, less than 5 percent remains. Illinois has storage capacity for over 815 million bushels of grain. The large 1979 crop and the embargo will cause a larger than normal carry-over, however.

If effective, the current embargo will reduce US grain exports between 17 and 20 million metric tons. Assuming that about 20 percent of this figure comes from Illinois, farmer-owned reserves will be increased by about 3.5 million metric tons, unless and until alternative markets are found. Because elevators are already full, the embargo has already caused local storage problems. Yet, according to recent projections, the government plans for most of the embargoed grain to go into farmer-owned reserves and is offering farmers loans of $2.10 for every bushel of corn ($2.50 for each bushel of wheat) stored. Since this program does not cover farm production costs, several farm groups, including the Illinois Farm Bureau, have asked the government to increase the minimum. Agriculture Secretary Bergland has stated, however, that the minimum loan will not be increased, nor will the federal reserve loan program be expanded to cover more Illinois farmers. The federal loan program offers loans and price supports to farmers who participated in previous set-aside programs, but less than 10 percent of the Illinois farmers are eligible for the plan. As it stands, therefore, projected and current federal programs will not offset the adverse impact of the embargo upon grain producers.

It is possible that the secondary impact of the embargo will buoy sales of agricultural equipment to Argentina and other countries that may attempt to make up the deficit in Soviet import of grains. Also, Illinois hog producers may benefit from the price effects of the large grain overhang. It is unlikely, however, that these favorable impacts will be sufficient or prompt enough to offset the negative impact of the embargo upon Illinois grain producers. The net effect for the State as a whole must certainly be negative.

Economic Viability Uncertain

How effective the current grain embargo will be in achieving its desired goals is as yet an unresolved issue. It would appear, however, that the embargo is a questionable economic policy to have been employed so early in the conflict, and especially where no contingency plans had been developed. The economic costs and incidence of those costs have several undesirable properties. In the US, the sharp and immediate effects place the burden on a very small population of important exporters. By contrast, the economic costs will be broad and delayed in the USSR, with an undifferentiated impact upon the

(Continued on page 7)

The Effect of a National Consumer Durables Recession on Illinois

Illinois is blessed with a highly diversified economy — because of this diversity, Illinois tends to weather recessions in the US economy better than many states. A recession can cause hardships however, even in Illinois. Therefore, it is important to understand how a recession affects the state economy.

A recession in the US economy is likely to affect Illinois employment, personal income, and tax revenues. A recession will cause businesses in the state to cut production and lay off workers. The lower total wage bill translates directly into reduced personal incomes for Illinois residents. Also, businesses will probably cut back on capital expenditures, resulting in a decline in the Illinois industrial base. Reflecting weakening Illinois incomes, there are likely to be declines in consumer spending. That is, retail markets will deteriorate. State tax revenues will decline as personal income falls and retail sales drop off.

Table 1. Employment Statistics as of September 1979

	United States	Illinois	Illinois % of US	Illinois motor vehicle % of Illinois employment
Total	90,255,000	4,888,900	5.4	.5
Manufacturing	21,199,000	1,240,500	5.9	2.0
Durables	12,812,000	845,100	6.6	2.9
Transportation equipment	2,053,600	52,500	2.6	47.0
Motor vehicle	974,700	24,900	2.6	100.0

Source: BLS, Employment and Earnings, November 1979.

To analyze the effects of a recession, and of other economic events, the Bureau of Economic and Business Research maintains a quarterly econometric forecasting model of the State of Illinois. The Illinois econometric model is capable of determining the effects of changing conditions in the US economy on Illinois employment, wages, workweek, personal income, and tax revenues. We employ the model to calculate the effects on the Illinois economy of two types of consumer reaction to a recession.

Two separate situations are considered. First, we examine changes in consumer purchases of automobiles. As an example, we consider the impact of a prolonged 15 percent reduction in auto sales in Illinois, with all other factors in the Illinois and US economies held constant. Alternatively, we examine the effects of a temporary 10 percent decline in sales of all consumer durable goods. In both cases, the model identifies the changes in employment, personal income, and direct sales tax revenues from the single cause being examined. The direct effects translate into secondary effects from other sources. That is, there are direct losses in sales tax revenue, indirect losses in income tax revenue, and indirect losses in sales tax revenue arising from reduced employment and payrolls.

In order to put the results of the analysis into perspective, we must examine the composition of the Illinois labor force, retail sales, and tax revenues. The motor vehicle industry employs only 25,000 in Illinois, or about one-half of 1 percent of the total Illinois labor force (see Table 1). In contrast, employment in durable goods industries in Illinois is a relatively more important share. It constitutes 6.6 percent of US durable goods employment, whereas total employment in Illinois is only 5.4 percent of total US employment.

As a consequence, the health of the durable goods industries is very important to the Illinois economy. Table 2 gives the composition of retail sales in the US, the East North Central Census Region (composed of Illinois, Indiana, Ohio, Michigan, and Wisconsin), and Illinois. One interesting point is that people in the East North Central Census Region spend a greater portion of total retail sales on automobiles than in the US. That difference appears to have been especially significant in September and October 1979. Finally, Table 3 shows the relative importance of sales to income tax revenue in Illinois.

Our estimates of the effects of the two types of recession are presented in Table 4. The effects on Illinois income and employment of a prolonged 15 percent decline in the motor vehicle industry are shown in Table 4. The effects on state tax revenues of the two separate recessionary situations are shown in Table 5.

Illinois employment and personal income are resis-

Table 2. Retail Sales (in millions of dollars)

Month and year	United States			East North Central US			Illinois		
	Total	Durable	Auto	Total	Durable	Auto	Total	Durable	Auto*
1-78	71,297	24,463	13,610	14,470	5,030	2,887	4,083	1,421	816
2-78	84,597	25,872	12,452	16,731	5,161	2,528	4,653	1,444	707
1-79	61,878	21,100	12,505	11,505	3,892	2,440	3,096	1,048	657
2-79	60,653	21,131	13,100	11,662	4,127	2,621	3,258	1,166	741
3-79	72,198	26,071	16,207	13,832	4,983	3,164	3,886	1,404	891
4-79	70,540	25,649	15,552	13,707	5,061	3,171	3,846	1,398	876
5-79	74,781	27,236	16,015	14,537	5,242	3,124	4,090	1,454	867
6-79	74,813	26,662	15,049	14,419	5,129	2,913	4,011	1,439	817
7-79	72,075	25,366	14,247	13,601	4,763	2,628	3,724	1,313	724
8-79	77,801	27,616	15,564	14,612	5,097	2,827	4,027	1,376	763
9-79	72,630	24,785	13,508	13,638	4,499	2,373	3,815	1,249	659
10-79	76,355	26,252	14,494	14,550	4,852	2,606	4,053	1,319	708

Source: US Census Bureau, Monthly Retail Trade, October 1979.
*Estimated.

Table 6. Illinois Tax Revenue (millions of dollars)

Year and month	Sales	Income
12-78	169	186
1-79	195	204
2-79	220	170
3-79	190	245
4-79	149	264
5-79	198	261
6-79	193	263
7-79	208	151
8-79	214	174
9-79	175	272
10-79	213	186
11-79	186	183

Source: Comptroller, State of Illinois, Monthly Fiscal Reports, various issues.

Table 5. Effects of a Decline on Illinois Tax Revenues

	Direct loss	Indirect loss	
	Sales tax ($ millions per year)	Sales tax ($ millions per year)	Income tax ($ millions per year)
-15% auto sales	65.3	4.8	5.7
- 1% auto sales	4.3	.3	.4
-10% consumer durables sales	81.0	19.1	22.6
- 1% consumer durable sales	8.2	1.9	2.2

Source: Bureau of Economic and Business Research.

tant to an auto sales slump, but a consumer durable sales decline has a larger immediate impact. Table 4 shows that a 15 percent auto sales decline immediately reduces real personal income .1 percent and total employment by .2 percent. In contrast, a 15 percent consumer durables sales decline immediately reduces real personal income .4 percent and total employment by .6 percent.

Table 5 shows that a 1 percent decline in auto sales causes a $4.3 million annual loss in sales tax revenue, due directly to the decline in retail sales. The secondary losses from this decline due to income loss amount to around $300,000 in sales tax revenue and $400,000 in income tax revenue annually. Direct sales tax revenue loss caused by a 1 percent decline in sales of consumer durables amounts to about $8.2 million per year. Indirect losses amount to $1.9 million in sales tax revenues and $2.2 million in income tax revenue annually.

In generating the revenue loss figures, we assume that consumers postpone auto (or consumer durable) purchases until such time as the economy recovers. If, on the other hand, consumers channel expenditures into substitutes for automobiles, these loss figures will overstate revenue loss. The extent to which revenue loss is overstated depends on whether or not these substitutes are subject to tax. For example, if the major portion of the substitution involves the use of public transit, the overstatement of loss will be insignificant. However, if consumers choose to maintain their old autos as opposed to buying new ones, direct sales tax revenue loss might be slightly overstated, to the degree that auto maintenance costs are subject to sales tax.

Examination of the indirect effects on tax revenues shows that the motor vehicle industry is not well represented in Illinois, while durable goods industries, as a whole, are a significant portion of the total industry picture in Illinois. Examination of the loss figures shows also that the income tax is more stable in the face of a consumer reaction to a recession than is the sales tax.

We show that a specific reaction on the part of consumers to a decline in the US economy will not cause undue hardship on the Illinois economy. We conclude that Illinois and its tax revenues are fairly resistant to the reaction of consumers during an economic downturn. This is not intended to be a general statement concerning the impact of a recession in the US economy on the State of Illinois.

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Table 4. Effects of Two Alternative Scenarios on the Illinois Economy

	15% decline in auto industry (% decline)		10% decline in consumer durables (% decline)	
	80:I	81:I	80:I	81:I
Real personal income	.1	.3	.4	.4
Real personal income - manufacturing	.4	1.2	1.6	1.1
Real wage and salary disbursements - mfg	.5	1.3	1.7	1.2
Real personal income - durable goods	.6	1.6	2.2	1.6
Real wage and salary disbursements - durable goods	.7	1.8	2.5	1.7
Employment	.2	.5	.6	.5

Source: Bureau of Economic and Business Research.

Seasonal Variations in Economic Time Series

Behavior of an Economic Time Series

Fluctuations in economic time series can be accounted for on the basis of several factors: long-term trend, seasonal movements, cyclical changes, the number of trading days during a period, and unexpected or irregular shifts. A trend in an economic time series represents the long-term underlying movements of the series that can be characterized by steady or only slightly variable rates of change. Real gross national product, for example, has grown at a rate of approximately 3 to 4 percent a year over the past 20 years. The increasing price level over the past decades is another illustration of a persistent, or long-term, movement.

Seasonal variations in an economic time series are those variations that occur rather predictably at a particular time each year. Obviously, seasonal variations can be found only in data recorded at intervals of less than a year; quarterly, monthly, or weekly data sometimes exhibit behavior of this type. Fuel oil consumption, for example, rises in the winter and falls in the summer. Retail sales, which usually increase before Christmas, also illustrate a seasonal pattern.

Cyclical variations are recurring movements in an economic time series associated with cycles of longer than one year. Cycles are not constant in amplitude nor duration. It is believed that they are associated with economic conditions or government policy changes. Business cycles, with their stages of prosperity, recession, and recovery are examples of such cyclical movements.

The trading-day component consists of variations in recorded data — such as retail sales — which are attributed to the composition of the calendar. Thus, we might expect certain types of business activity to be affected by the number of holidays or the number of Fridays in a month. Irregular variations constitute the movements that do not fit into the other four categories. Usually they are caused by factors such as drastic changes in the weather, wars, strikes, and other dramatic events. In terms of statistics, irregular variations may be thought of as the residuals left in an economic time series when the trend, seasonal variations, cyclical variations, and trading-day variations have been moved. Since they are not periodic in nature, irregular variations cannot be predicted by using historical data — even though they may be understood in retrospect.

Reasons for Adjusting an Economic Time Series

Most people who use economic data — whether they be businessmen, economists, or government policymakers — are looking for cyclical shifts, or other marked and persistent departures from the past. They use data for decision-making. They need to know whether to ease (or tighten) monetary or fiscal policy. They need to know whether to shift a product line, whether to slow down (or speed up) production, or many other decisions. Before they attempt to analyze data, they often want those movements related to seasonal and trading-day variations removed. If the routine data changes are moved, the most important movements can be detected and examined. Because seasonal and trading-day variations are usually caused by social customs and weather conditions, their inclusion in data may lead to misjudging the underlying economic strength of the time series. For example, a slight increase in retail sales in December may give someone without knowledge of retail trade the impression that business is good when in fact the economy is weakening. That is, when the effects spurred by the Christmas season are removed, it may be shown that retail sales have actually worsened. Similarly, the slowdown in construction during the winter months need not necessarily cause concern, since it may be that weather has created the slowdown rather than a fundamental weakening in demand for houses.

In short, the trend and cyclical components can be studied more easily when pronounced seasonal and trading-day fluctuations are eliminated. By removing the seasonal and trading-day variations in an economic time series, it is hoped that the remaining components will reveal the trend and oscillations which can be accounted for on the basis of economic factors.

Method of Adjusting an Economic Time Series

The foregoing discussion suggests that a way is needed to remove seasonal and trading-day variations. Although there are many approaches to this problem, only one is discussed here. It is the approach adopted by the US Bureau of the Census.

The method involves computing seasonal indexes. These indexes are numbers which vary from a base of 100. When a month (or week or quarter or other seasonal period) is assigned an index value of 100, this indicates that the month has no seasonal variation. An index value of 120 means that the time-series value is expected to be 20 percent above the trend-cycle value because of seasonal factors. Similarly, if the index value is 90, the time-series value is expected to be 10 percent below the trend-cycle value.

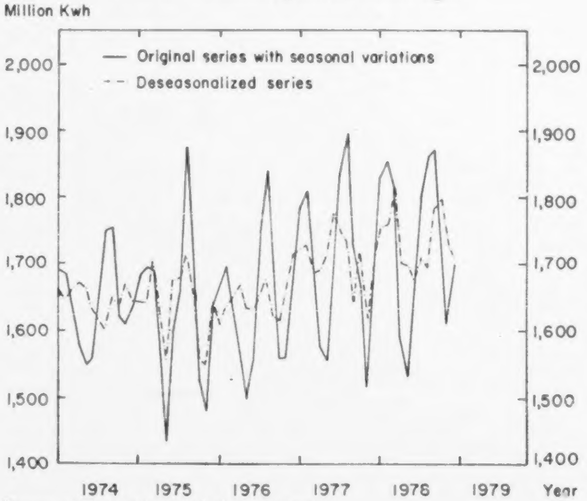
To obtain the seasonal indexes, we first compute the yearly moving average for the series. This moving average roughly gives the trend-cycle component. Then we compare each season's actual value with the corresponding yearly average for a preliminary index. The preliminary indexes arrived at are then averaged over all years in the series. The final indexes obtained are the seasonal indexes.

A casual look at the chart will tell how much seasonal variations exist in electric power consumption figures. Data that have been adjusted for seasonal variation enable one to determine whether a series is increasing or decreasing during two or more consecutive periods of a year without being deceived by apparent increases or decreases caused by natural seasonal variations. Thus one can compare electric power consumption for November and December of 1978 and determine whether electric power consumption is really picking up or dropping, without worrying too much about the effects caused by the cold winter.

Some Warnings of Seasonal Adjustment

The trend, seasonal, cyclical, trading-day, and irregular components of an economic time series are determined by mathematical calculations. The mathematical calculations can accomplish what is intended only if the economic series behave accordingly. The foregoing method was designed for an ideal series. Are methods such as this capable of decomposing actual economic time series? The answer is that seasonal adjustments are successful only if the series is fairly regular and stable in behavior. For some series which have highly variable distances between crests of waves, decomposition techniques may not work well. For example, seasonal movements at Christmas are highly regular, whereas seasonal movements at Easter exhibit more widely varying periods from year to year. The reason is that Easter does not occur each year on the same date.

Electric Power Consumption, Chicago



Bureau of Economic and Business Research

Another potential danger of using seasonal adjustment is that seasonal indexes used to adjust the current data are estimated on the basis of data obtained up to a year ago. Since indexes are estimations, minor errors are likely to occur. This implies that the seasonally adjusted data may contain some minor estimation errors. One therefore must not be overly concerned with a slight monthly change in the adjusted data, since it may be due to estimation errors. On the other hand, monthly or quarterly changes of reasonably large magnitude are unlikely to be caused by minor estimation errors, and may be a cause for concern.

Some Concluding Remarks

Despite shortcomings, seasonal adjustment is still a useful tool for most purposes. In 1954, the US Bureau of Census introduced the first electronic computer program for seasonally adjusting economic time series, making possible the method already described on a large-scale basis for the first time. The current version used by the Bureau of Census is more sophisticated than the earlier version. Today, variants of the Census method are in widespread use throughout the world for adjusting series at the company, industry, and national levels. The Bureau of Economic and Business Research uses the Census method to adjust most of the economic series presented in the *Illinois Business Review*. It is hoped that the adjusted data more accurately reflects the economic condition of the State.

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Grain Embargo

(Continued from page 3)

Soviet population. Long-term consequences for US-Soviet trade will no doubt be serious and difficult to reverse. The 1975 trade agreement may not survive the embargo. That is, negotiations for a new trade agreement need to begin in the near future for assured grain trade between the two countries to continue. The decline in demand for US agricultural products that would result from losing the Soviet market has serious implications for US long-run comparative advantage.

The effectiveness of the grain embargo depends upon its objectives. As a tool for influencing Soviet economic or political policy, an impact is not yet evident and it seems unlikely. As a way to express US unhappiness over Soviet actions in Afghanistan, it does show our willingness to pay a price. It is clear, however, that should an embargo be used as a foreign policy tool again in the future, it is desirable to have a well-thought-out contingency plan in place to insulate affected US producers.

Comparative Economic Data for Selected Illinois Cities, December 1979

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)		Employment (000)		Estimated work force unemployed (percent)	
	Dec. 1979	% change from Dec. 1978	Dec. 1979	% change from Dec. 1978	Dec. 1979	% change from Dec. 1978	Dec. 1979	% change from Dec. 1978	Dec. 1979	Dec. 1978
ILLINOIS	$90,054[a]	-6.5	3,439.4[a]	-3.1	$52,523[a]	+8.3	5,105	+0.6	6.4	5.7
NORTHERN ILLINOIS										
Chicago	56,469	-2.9	1,668.8	-2.6	40,333	+8.8	3,340.6[b]	+2.7	5.5[b]	5.3[b]
Aurora	2,922	-11.8	114.7	-23.0	605	+3.2	39.1	+2.6	6.6	4.8
Elgin	752	-75.8	89.7	+1.5	599	-12.8	28.6	+2.5	7.4	6.4
Joliet	3,365	+301.5	387.7	0.0	400	+12.3	47.8	+2.5	8.4	5.7
Kankakee	2,104	+91.0	78.0[c]	+6.7	237	+1.7	37.6[b]	n.a.	9.0[b]	n.a.
Rock Island-Moline	3,101	+55.9	118.2[d]	+11.8	1,607	+32.9	109.4[e]	+1.9	5.0[e]	4.7[e]
Rockford	3,230	+18.5	156.9	-1.9	926	-3.4	134.2[b]	+2.8	6.2[b]	5.2[b]
CENTRAL ILLINOIS										
Bloomington-Normal	443	-85.0	51.8	+11.1	1,071	+8.0	58.3[b]	-2.1	5.0[b]	4.6[b]
Champaign-Urbana	2,175	+37.7	54.6	+6.8	761	+8.8	79.3[b]	+6.8	4.4[b]	4.9[b]
Danville	3,272	+952.0	45.7	-4.9	282	+22.6	19.0	+0.5	9.7	7.9
Decatur	2,868	-37.5	124.9	+0.4	531	-3.4	53.1[b]	-7.4	12.3[b]	6.4[b]
Galesburg	574	-63.2	31.0[c]	-0.6	161	+0.6	15.3	-1.2	7.0	11.8
Peoria	2,324	+34.5	163.9	-19.9	1,674	+22.0	157.7[b]	-6.3	7.4[b]	5.0[b]
Quincy	458	+65.3	41.5	-4.3	258	+124.3	20.2	+2.5	6.0	6.3
Springfield	1,681	+88.8	114.2	-3.1	1,972	-11.1	90.5[b]	-0.2	6.5[b]	6.2[b]
SOUTHERN ILLINOIS										
East St. Louis	n.a.	n.a.	23.4	-10.3	197	+4.7	23.4	+4.4	11.7	10.3
Alton	463	-81.9	81.7	-4.5	138	-6.1	15.8	0.0	7.7	6.7
Belleville	188	-78.7	27.2	+3.4	351	+2.3	20.4	+4.0	4.9	4.3
Carbondale-Murphysboro	148	-98.3	32.9	-2.6	346	+17.2	n.a.	n.a.	n.a.	n.a.

Sources available upon request.

[a] Total for cities listed. [b] Data for standard metropolitan statistical area. [c] Includes immediately surrounding territory.
[d] Includes East Moline. [e] Illinois portion of Davenport-Rock Island-Moline SMSA. n.a. not available.

How Big Is Illinois State Government?

RICHARD KOLHAUSER

In 1978, Caterpillar Tractor, the largest manufacturer in Illinois and the 24th largest firm in the *Fortune* 500 list, reported worldwide sales of just more than $7.2 billion.

In that same year, Illinois state government spent $8.8 billion, about $2,340 for every household in the state, mostly for education (elementary, high school, and university), income assistance and health services to the poor, and road construction and maintenance. The comparison suggests state government is very large and Illinois taxpayers may have reason to question the size and growth of state government just as taxpayers nationwide have voiced concern.

Perhaps the size of Illinois state government can be revealed by comparing state government spending with the income received by Illinois taxpayers. Based upon this approach, changes in the size of state government are traced over the last two decades and observations are made regarding growth of Illinois state government in future fiscal years.

The current interest in government spending also is timely from another perspective. Important arguments based upon rapidly growing population, used since the 1960s to justify higher spending, no longer are relevant.

For example, the number of young persons to be educated (Illinois's largest spending program) has declined each year since 1971, after years of steady increases. The number of families receiving public assistance (the second largest program) also has been in a downward trend since 1976, following years of spectacular growth.

The declining size of both population groups is projected to continue, although the size of the public assistance population will remain contingent upon the strength of the state's economy.

Admittedly, the answer to how much government spending is too much will depend upon individual philosophies of government, perceptions of the need for government services, and the willingness of individuals to pay for government activities. However, the perspective on government spending relative to income growth also can provide a useful framework for assessing these larger policy issues.

Every working day, state government spends about $38 million. (For perspective, daily spending of $38 million represents the combined annual income of more than 2,500 Illinois families each earning $15,000 a year.) Throughout 1979, spending reached about $9.4 billion.

The more than 225 major spending units include state agencies, boards, commissions, and universities. These agencies fall broadly into eight categories: education, human services, transportation, business regulation, economic and community development, natural resources, public health and safety, and central administration.

The hundreds of programs managed by these agencies range from ensuring nuclear safety, inspecting restaurants, providing baby sitters or housecleaning services, subsidizing medical care, repairing roads, sheltering the aged, and educating Illinois residents.

To provide these services, state government has a payroll of more than 115,000 persons, including the 38,000 employed by the 10 state universities.

State programs are financed by more than 1,000 different revenue sources. These include the state income and sales taxes — each yielding well over $2 billion — as well as consumption taxes on cigarettes and liquor, user fees such as motor fuel tax and hunting and fishing permits, regulatory charges such as examination and license fees paid by the financial community, and parimutuel wagering.

The state's bookkeeper, the comptroller, daily records the expenditures, receipt of revenues, and transactions among funds. This elected official (along with 350 employees and two computers) pays the state's bills, writing nearly 14 million checks each year. These include more than 400,000 checks to the elderly for tax relief, 4 million checks to low-income families, 3½ million checks to state employees and pensioners, and 3 million refund checks to persons who overpaid their state income tax.

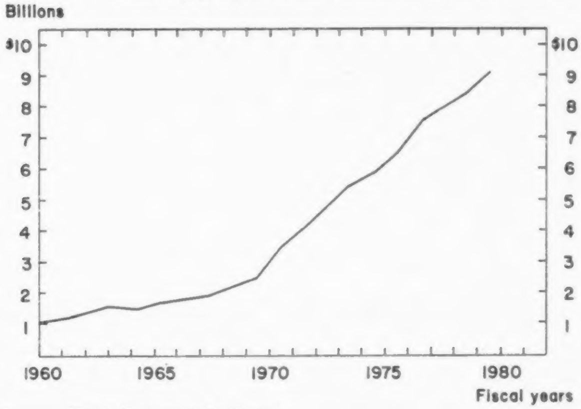
These financial and employment statistics only partly describe the size of Illinois state government. The measure used most frequently by state officials and the news media to define the size of state government is state spending from appropriations that have been approved by the Illinois General Assembly.

In 1960, state spending totaled $1.2 billion ($387 per Illinois household). Two decades later, state spending will have increased nearly eightfold, reaching an estimated $9.4 billion in 1979 ($2,520 per Illinois household). Chart 1 traces the path of state spending from 1960 through 1979 (spending is from all appropriated funds including the general funds, highway funds, bond-financed funds, debt service funds, special state funds, revolving funds, and university funds).

Each year, state spending increases over the prior year's level. Spending grew at an average annual rate of 10 percent in the 1960s and 12 percent during the 1970s. The smallest annual percentage increase in spending occurred in 1978 — 2 percent — and the largest in 1970 — 29 percent. The extreme low was the result of a successful effort to avoid new taxes, while the extreme high occurred in the first year of the state income tax.

Mr. Kolhauser is deputy director of the Illinois Bureau of the Budget. This article is from a book, *Illinois: Political Processes and Governmental Performance*. The book, edited by Edward Crane, Jr., was published last autumn by Kendall Hunt, of Dubuque, Iowa.

Chart 1. State Spending Increases Eightfold
(All appropriated funds FY 1960–79)



Source: Illinois Bureau of the Budget

During both decades, the average annual growth in spending exceeded the rate of inflation as measured by the Consumer Price Index (CPI). In the last two years, however, spending grew at a slower rate than inflation. The table contrasts the growth in state government spending with the inflation rate.

The annual increase in state spending due to inflation, new programs, and expansion of old programs must be financed by higher annual revenue yields. Revenues to the state increase with expansion of either the tax base or tax rates for existing taxes, addition of new tax sources, and increases in federal aid.

(The proportion of federal aid to total revenues received in the state's appropriated funds has declined moderately over the last 20 years. Federal aid was 27 percent of total revenues in 1960 — $337 million — and 24 percent in 1979 — $2.3 billion.)

State Spending Versus Inflation

	Two decades Average annual growth	
	1960-69	1970-79
State spending	10%	12%
CPI	2%	7%

	Recent years Growth over prior years				
	1975	1976	1977	1978	1979
State spending	17%	14%	6%	2%	8%
CPI	11%	7%	6%	7%	9%

Revenues from state sources also grow "automatically" as real economic growth and inflation expand the state's tax bases.

The data in Chart 2 shows state revenues have increased steadily from $1.2 billion in 1960 to $9.6 billion in 1979. The "automatic" growth in revenues through 1972 was supplemented greatly by new revenues from several state tax increases including introduction of the income tax in 1970.

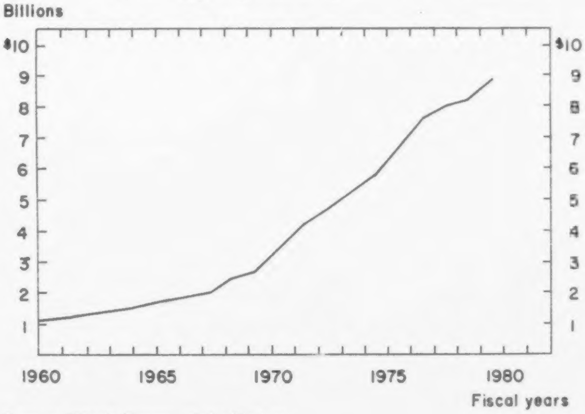
Recent tax increases by specific source and the calendar year enacted are sales tax — 1959, 1961, 1967; public utility tax — 1965, 1967; cigarette tax — 1961, 1965, 1967, 1969; liquor tax — 1969; horseracing — 1964, 1965, 1969; and motor fuel tax — 1967, 1969.

The income tax became effective August 1969 (fiscal year 1970), but the full potential was not realized until fiscal year 1972. The state lottery was established in 1975. The lottery amounts to only 4/10 of 1 percent of total state revenues.

Since that time, there have been no expansions of the state's tax structure. In recent years, most of the annual growth in state revenues came from inflation. For example, as inflation increased the price of automobiles, energy, food, clothing, and appliances, receipts from the state sales and public utilities taxes also increased.

As state spending has increased in the last 20 years, Illinois taxpayers have provided billions more in state revenues to support the additional spending. Steadily increasing taxes would, at some point, become intolerable if the income received by Illinois taxpayers was not increasing also along with the increasing tax level.

Chart 2. State Revenues Increase Eightfold
(All appropriated funds FY 1960–79)



Source: Illinois Bureau of the Budget

Illinois personal income is reported by the Bureau of Economic Analysis, United States Department of Commerce, and is defined to include wages and salaries (65 percent), investment income (14 percent), income from small businesses (6 percent), and other varied sources.

Although the income of individual Illinois taxpayers varies widely, total Illinois personal income can be used to measure the aggregate ability of Illinois taxpayers to support state government. Without continued growth in Illinois personal income, taxpayers' willingness and ability to support state government would decline over time.

Chart 3 shows the steady growth in Illinois personal income since 1960.

The combined income of all Illinois taxpayers increased about fourfold in the last two decades from $26 billion in 1960 to $102 billion in 1979. Yet, during the same period, government spending increased eightfold.

Government expands when the growth in spending and revenues outstrips the growth in income received by Illinois taxpayers. This relationship is best explained by the ratio of state spending to Illinois personal income expressed as a percentage. For example, the $9.4 billion state spending anticipated in 1979 is 9.2 percent of the $102 billion income received by Illinois residents. Stated in another way, state spending represents about 9.2 cents of each dollar of Illinois income.

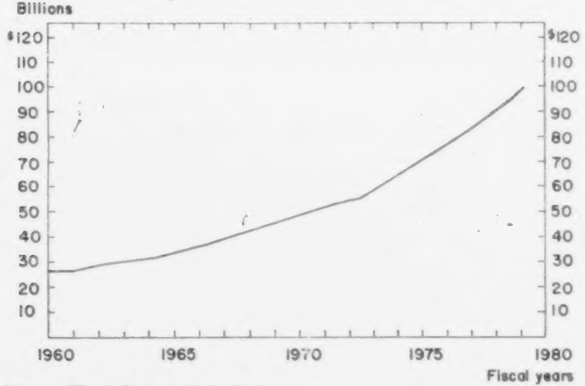
Annual changes in state spending as a percentage of Illinois personal income indicate whether spending is growing faster than personal income. Viewed over time, the annual ratio of state spending to personal income readily will identify significant changes in the relative size of state government. Chart 4 shows how state government has doubled in size. State spending represented 4.6 percent of Illinois personal income in 1960 and 9.3 percent of personal income in 1979.

The growth from 4.6 percent to 9.3 percent seems to confirm the widespread feeling that government continually is getting bigger. Closer examination of the chart, however, also shows state government has "lived within its means" and has not gotten any larger in the last decade.

Four distinct periods are depicted in Chart 4. Two reference lines drawn in that chart, one at the 5 percent level and another at 9 percent, help to define these periods. From 1962 through 1967, state spending as a percentage of Illinois income remained roughly constant at about the 5 percent level.

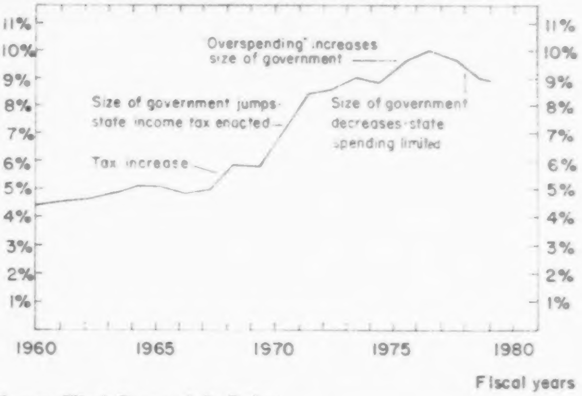
Thereafter began a period of extraordinary growth in state government. State spending increased 25 percent in 1968, 29 percent in 1970, and 25 percent in 1971. In contrast, Illinois personal income grew only 6 percent, 5 percent, and 7 percent in the same years.

Chart 3. Illinois Personal Income Increases Fourfold



Source: Illinois Bureau of the Budget

Chart 4. State Government Doubles in Size (State spending as percentage of Illinois personal income)



Source: Illinois Bureau of the Budget

Sharply higher spending was supported by revenues from a tax increase in 1967 and a new income tax in 1970. At the end of the last decade, state government jumped in size from about the 6 percent level to the current 9 percent level.

The chart shows state-spending growth exceeded income growth again during the mid-1970s. (Reasons for the "overspending" include funding for a new school aid formula for elementary and secondary education, recession-induced increases in public aid spending, and two new state programs -- subsidy to the RTA and tax relief for the elderly.)

As a percentage of income, state spending jumped from 9.2 percent in 1974 to 10.3 percent in 1976. State spending increased by 17 percent in 1975 and 14 percent in 1976 when Illinois income grew by only about 9 percent in each year. This time, rather than a tax increase, higher spending was financed by drawing down the balances in the state treasury to crisis levels, causing, at times, significant delay in payment of the state's bills.

The growth in state spending was cut back beginning in 1977 so new taxes or tax increases could be avoided. State spending increased 6 percent in 1977 and only 2 percent in 1978 — well below the 9 percent growth in Illinois income. Spending growth also will be less than income growth in 1979.

Consequently, the "size of government line" in Chart 4 bends downward each year after 1976, bringing the current size of Illinois government back to roughly 9 percent of Illinois personal income. State government then, has remained about the same size over the last decade, except for a brief period in the mid-1970s.

Timely updating of Chart 4 can help predict future increases in the size of Illinois state government. In time, new state taxes will be necessary if the chart shows spending growth is outstripping personal income growth. Depending upon the condition of other detailed features of state finances (such as state treasury balances and the magnitude of budget deficits), this method can be used to help anticipate new taxes.

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However, only when the rate of increase in state spending exceeds for a time the rate of increase in Illinois income, will state government expand in the sense that irritates many taxpayers — more of each dollar earned going to support government.

Will the relative size of Illinois state government continue to decline as it has since 1977? It seems unlikely. State spending grew slower than personal income in 1977, 1978, and 1979 because the financial problems that plagued the state in the mid-1970s — "overspending," cash shortages, and deficit budgets — were resolved by tight controls on state spending.

It was possible to limit sharply spending growth for a time, because severity of the state's financial problems was widely recognized. Now, as elected officials report state finances are once again in order, pressures for additional spending have become intense.

The pressure of interest groups probably will result in the state government's spending nearly all available revenues each year. However, intensity of the tax revolt may preclude elected officials from raising taxes. Therefore, since state revenues grow at about the same rate as the economy, the relative size of Illinois government probably will remain at about 9 percent.

In the long run, the relative size of state government in Illinois will depend upon taxpayer willingness and ability to pay for state programs and changes in the need for state programs.

Ability to pay is dependent upon the state of the economy. Ability to pay will be increased if the economy grows and real incomes increase. Should economic growth stall, perhaps due to an energy crisis or uncontrolled inflation, then Illinois taxpayers (as well as taxpayers in other states) will be reluctant to share more of each dollar of their income with state government.

Illinois Business Indexes

Item	Dec. 1979	Nov. 1979	Oct. 1979	Sept. 1979	Dec. 1978
Leading indicator (1969=100)	92.9[a]	92.9[a]	93.3	93.9	95.2
Coincident indicator (1969=100)	148.4[a]	148.9[a]	150.4	152.9	151.3
Employment - manufacturing (in thousands)	1,158.6	1,157.5	1,183.1	1,240.5	1,242.4
Average weekly hours - manufacturing	40.9	41.4	41.0	41.3	40.4
Weekly earnings - manufacturing	$312.5	$308.9	$303.4	$309.0	$285.3
Layoff rate - Chicago	0.48	0.86	0.64	0.48	0.23
Ordinary life insurance sales (in millions)	$1,811	$1,513	$1,625	$1,347	$1,606
Retail sales (in millions)	n.a.	$4,216	$4,056	$3,815	$4,653
Coal production (in thousands)	4,863	5,017	5,916	4,597	4,880
Petroleum production (in thousands)	n.a.	1,875	1,961	1,781	2,038
Vendor performance (percent)	55.5	51.6	50.5	49.0	76.3
Building permits (in thousands)					
Residential housing units	n.a.	3.83	3.74	4.12	2.8
Value of residential housing	n.a.	$117,523	$144,083	$157,410	$104,517
Value of nonresidential housing					
Industrial buildings	n.a.	$28,206	$45,160	$48,620	$25,398
Office, banks, and professional buildings	n.a.	$55,039	$58,630	$61,580	$11,750
Stores and other mercantile buildings	n.a.	$31,387	$35,404	$39,093	$17,541
Other	n.a.	$33,897.3	$52,316	$46,929	$36,395
Consumer price index					
North Central US	125.1	-	122.6	-	110.0
North Central/population more than 4,000,000	126.3	-	123.2	-	110.1
North Central/population 385,000 to 1,250,000	124.6	-	122.3	-	110.2
North Central/population 75,000 to 385,000	123.7	-	121.9	-	109.8
North Central/population less than 75,000	123.0	-	122.0	-	109.8
Chicago	228.4	225.9	221.8	221.3	198.6
St. Louis	-	225.7	-	222.2	-
Farm prices	111	107	109	116	115
	1979:III	1979:II	1979:I	1978:IV	1978:III
Personal income (in millions)	$113,682	$110,286	$106,920	$103,397	$101,587

Sources available upon request. [a]preliminary. n.a. not available

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Are We Losing Ground?

JULIAN L. SIMON

Is the public being purposely misled about the trends in available land? Or are the scare reports just honest ignorance?

The title of this article is from the 1976 book by Erik P. Eckholm, *Losing Ground*. That book is a product of the Worldwatch Institute. It was written "with the support and cooperation of the United Nations Environment Program," and contains a laudatory foreword by Maurice F. Strong, the executive director of the UN Environment Program. I draw attention to the auspices of Eckholm's book because we can consider it as representative of the "official" position of the interlinked institutions in the world community of environmental and population organizations.

The thesis of Eckholm's book is that we are in the midst of a negative trend in the world's land situation. In the language of Strong's foreword, "[O]ur delicately balanced food systems are being ecologically undermined . . . through deforestation, overgrazing, soil erosion and abandonment, desertification, the setting of irrigation systems . . . etc." As a *New York Times* headline about the book put it, "Fertile Land Areas Dwindling in Poor Countries Despite Aid."

Apparently associated with the appearance of Eckholm's book, the United Nations convened a conference on "desertification" in August–September 1977, in Nairobi. Front-page headlines in the 28 August 1977 *New York Times* reported "14 Million Acres a Year Vanishing as Deserts Spread Round Globe." *Newsweek*'s 19 September 1977 full-page story headline was "Lethal Spread of the Sands." *Golden Book* for children tells this story in simple terms: "Our Soil — Wasted and Lost." The clear implication of these frightening statements is that the world's supply of arable land is decreasing.

It is, however, factually untrue that the world is "losing ground" on a net basis. Of course, arable land is going out of cultivation in some places because of erosion and other land-destructive forces. But taken as a whole the amount of arable land in the world is increasing year by year, in flat contradiction to these quoted statements.

Before we look at the data, let us formulate the questions. We first ask: What is the present trend in the supply of arable land? Next we ask: What is the effect of increasing affluence on the supply of agricultural land? Last we ask: What is the effect of population growth upon the supply of agricultural land?

Julian L. Simon is professor of economics and business administration at the University of Illinois. For some years his special interest has been the economic effects of population changes. This article is drawn from a book forthcoming from Princeton University Press on population, resources, and the environment, *The Ultimate Shortage*. Simon's most recent book is *The Economics of Population Growth* (Princeton, 1977). He has also written on other subjects including the economics of advertising research methods and managerial economics. He was a businessman before becoming a professor.

The Trend of Arable Land: Losing Ground?

Eckholm provides frightening *anecdotes* aplenty about how the world is "losing land" to deserts, dust, overgrazing, woodcutting, and salting, many of them travelers' impressions and like evidence. But statistics he does not give. He does say that "ideally, a book on the ecological undermining of food-production systems would include detailed national statistics. . . . Unfortunately, such comprehensive data are not available."

In fact, comprehensive data *are* available. And when examined, these data contradict the thesis that there is a decrease in the amount of arable land. The data do not confirm the picture suggested by the anecdotes; rather, they tell just the opposite story.

Joginder Kumar (see Table 1) carefully collected and standardized the latest available data on land supply and use in the various countries of the world. His finding:

TABLE 1. CHANGES IN LAND USE, 1950-60

	Arable land as a percentage of total area		Percentage of arable that is cultivated		Cultivated land as a percentage of total land (1x3) and (2x4)		Agricultural (arable plus pasture land) as a percentage of total area	
	(1) 1950	(2) 1960	(3) 1950	(4) 1960	(5) 1950	(6) 1960	(7) 1950	(8) 1960
Africa	14.27	15.30	36.21	42.72	5.2	6.5	46.50	49.02
Middle East	12.87	13.91	52.11	57.88	6.7	8.1	13.06	17.34
Asia	19.03	20.78	82.06	86.17	15.6	17.9	46.35	49.60
Frontier countries (N. and S. America, USSR, Australia, New Zealand)	6.88	7.75	82.85	82.96	5.7	6.4	34.27	38.59
Europe	30.79	30.98	89.02	90.06	27.4	27.9	45.63	46.10
All regions	10.73	11.73	82.74	83.99	8.9	9.9	37.35	41.07

Source: Joginder Kumar, Population and Land in World Agriculture (Berkeley: University of California Press, 1973), p. 107.

there was 9 percent more total arable land in 1960 than in 1950 (in the 87 countries for which data were available, accounting for 73 percent of the total land area for the world). More details on this impressive gain of almost 1 percent per year are given in Table 1. Moreover, the trend from 1950 to 1960 still continues, as Table 2 indicates. UN data show a 7.4 percent rise in the world's "arable and permanent cropland" from 1961–65 to 1975.

In short, the amount of arable land in the world — and especially in the poor and hungry countries — is increasing, rather than decreasing as the popular press says it is.

Where Is the Amount of Cultivated Land Declining?

The amount of cultivated land *is* going down in *some* places — but where? In the US, that is where. But this decline is by no means a bad sign. Total agricultural output and yield per acre in the US have been going up sharply, to the extent that "overproduction" is a problem. This high output is obtained in large part with huge farm machines that require flat land for efficiency. The combination of increased productivity per acre of good land, and increased use of equipment adapted to flat land, has made it unprofitable to farm some land that formerly was cultivated. For example, in New Hampshire between 1860 and 1950 the tillable area declined from 2,367,000 acres in 1860 to 451,000 acres in 1950. There are, however, places where it is for negative reasons — usually war or fights about land tenure — that land which was formerly cultivated is no longer farmed.

TABLE 2. CHANGES IN LAND USE, 1961-65 to 1975

	Arable land as a percentage of total area				Agricultural arable plus pasture land that is a percentage of total area			
	1961-65	1966	1970	1975	1961-65	1966	1970	1975
Africa	6.28	6.50	6.76	6.96	32.88	32.96	33.13	33.29
Middle East	6.25	6.38	6.54	6.79	21.91	22.12	22.32	22.62
Far East	28.87	29.37	29.88	30.73	33.08	33.62	33.80	34.56
North America	11.50	11.43	12.17	13.08	26.10	25.85	25.88	25.50
USSR	10.24	10.24	10.39	10.37	26.83	27.34	27.09	26.97
Latin America	5.64	5.97	6.43	6.82	29.56	30.29	31.29	32.41
Western Europe	27.21	26.55	25.97	25.04	46.35	45.78	44.83	43.72
All regions	10.41	10.58	10.93	11.25	33.13	33.38	33.71	33.99

Source: UN, Food and Agriculture Organization, Production Yearbook, 1976.

Even such people as Eckholm who worry about the "loss" of land acknowledge that it is in our power as human beings to have more land if we will work for it to halt destructive trends. Using lands well suited for agriculture, we can provide an adequate diet for all. But as we shall see, decisions to make these adjustments are rooted in economic considerations.

Is Land Different From Other Resources?

Land, which many people consider to be a special

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kind of resource, is subject to the same processes of human creation as other natural resources. Though the stock of usable land *seems* fixed at any moment, it is constantly being increased — at a rapid rate in many cases — by clearing or reclamation of wasteland. Land also is constantly being replaced by multiplication of the number of crops per year on each unit of land, and by increasing yield per crop with better farm methods and with chemical fertilizer. Last but not least, land may be created anew where there is no land. For example, much of Holland originally belonged to the sea.

Holland was created by new muscle power. But our potential for creating new land has increased as our knowledge and machinery and new power sources have developed. In the future, the potential for creating new land will be even greater, as we will be able to make mountains where there is now water, as we learn new techniques of changing the nature of soils, and as we learn how to develop and transport water to arid areas.

Once built, land can be lost, too, through neglect and depopulation, as happened in the Tigris-Euphrates area. Because much of the area has not been settled or cultivated in 1,000 years or more it has been scoured by wind erosion.

The key idea is that land is man-made, just as are other inputs to farm production. A farm's productive quality in the present is the result of all the care that has been given to the land in the past, and this care is an investment like any other investment. With the development of modern farming methods, the output of a piece of land depends increasingly little on its natural endowments.

Some of the most valuable corn and soybean farmland in the world is in Champaign County, Illinois. Many people are surprised to learn that before the pioneer farmers applied huge amounts of labor and sweat (and life) into developing this land, it was a malarial, water-logged, unproductive swamp. The schoolchild's idea of a vast, untapped, prairie frontier, where if the white man was brave enough to stand up to the Indians he needed only to drop seeds in the earth to have a bountiful crop, is simply a myth.

Nor is landbuilding a thing of the past, even in Champaign County, Illinois. For example, Harold Schlensker has farm holdings (which his sons work) worth more than a million dollars on paper. Much of the increase in value of the land he bought over the years came from reclamation. He purchased swampland, installed drainage ditches, and thereby created good, arable land. And in various parts of the US, cropland is being created at the rate of 1.25 (or another estimate, 1.7) million acres yearly with irrigation, swamp drainage, and other reclamation techniques. This is a much larger quantity of land than the amount that is converted to cities and highways each year, as we shall see later. Compare this with the purely nightmarish view that land is fixed in quantity, and that agricultural land capacity is being "lost" to cities and highways.

Population Growth and Land

Population growth always raises the specter of "increased pressure on the land." More people implies smaller farms per farmer, all else equal, and hence a harder struggle to produce enough to eat. The vision is that a larger population necessarily means "more pressure" on the land, until each of us is nightmarishly scratching out three skimpy meals from 18 hours of work a day, on a plot the size of a window box.

Together with this specter hovers another, that additional people ruin and *use up* land; and there is a simple explanation, according to organizations such as the official Smithsonian Foundation and the Environmental Fund: "More people, less land" in the latter's words. Yet the world eats as well or better now than in earlier centuries, even in present-day poor countries.

One part of the explanation: Though more land per person was available in the past than at present, people did not farm all the land available to them, for two reasons, (1) they were physically unable to farm a larger area than they did farm — there is considerable data showing that the amount of land peasant farmers can handle without modern machinery is quite limited by the availability of human strength and time; (2) most important and least understood: farmers in the past had little motive for farming more land than they did farm. Subsistence farmers grow only as much as they expect to eat.

Why *would* a subsistence farmer grow more than his family can eat? Does an urban housewife buy so many vegetables for the week that they spoil? It is no more a miracle that output increases when population increases than it is a miracle that you, the reader, have enough vegetables to last the week even when guests are staying with you.

Reduction in the amount of land available to the farmer causes little hardship when previously he was not farming all that was available (though he may have to change his farming practices so as to cultivate the same land more intensively, year after year, rather than rotating fallow and crops). The other side of the coin is that when farmers need more land, they make more land, as we have seen.

What will happen to the supply of land as income rises and people demand more food luxuries such as meat, which requires large quantities of grain as feed? Or even more strongly, how about the effect of a rise in income combined with an increase in population?

The answer given to this question by the statistical data is so astoundingly hard to believe that it seems weird: the absolute number of *acres per farmer rises* when income becomes high, *despite* increases in population and income. When we look at data for the US, England, and other more developed countries in Table 3, we see that the *absolute* number of farm workers is *going down,* and the absolute amount of land per farm worker is going up, despite the fact that the total population is growing.

Please reread the preceding sentence carefully. It does not say that the *proportion* of the population in agriculture is going down in the richer countries; it says something much stronger — the *absolute* number of farm workers is going down, and the absolute amount of land per farm worker is going *up* in these countries. This fact makes it very clear that the combined increases of income and population do *not* increase "pressure" on the land, in contrast to theory and to the state of affairs in poor countries that have not yet been able to adopt modern farming methods.

The extrapolations of this trend for the future are so optimistic as to be astonishing: As the poor countries get richer, and as their population growth rate falls, the number of people needed to work in agriculture to feed the rest of the population will begin to fall — though the population gets bigger and richer. So much for a long-run crises in agricultural land caused by population growth!

Let us push this idea even further, both because it shows how a simple-minded extension of trends such as this one can lead to absurd conclusions, and because it illuminates an interesting phenomenon: A continuation of this trend in the US, carried to the same absurdity as the nightmare described earlier, would eventually have just one person farming all the land in the US, and feeding everyone else. That would be a point of zero "pressure" on the land.

Where will this benign trend stop? No one knows, but as long as agriculture is pointed in this economically desirable direction, we need not be concerned about how long it can go on — especially as there are no obvious technological forces to stop the trend.

While countries are still poor they cannot embark on a course of mechanization sufficiently intense to increase total output and at the same time reduce the total number of workers in agriculture. But at least the proportion of workers in agriculture falls, as is already happening in almost every developing country despite population growth. And eventually the *total* number of farm workers is likely to start falling, too. This is not yet happening in the poorer countries, but eventually we can expect to see the same trend as was at work in the past in the now-rich countries.

The increase in agricultural output as population rises has mostly come about by increases in the amount of land that has been farmed. As population increases, people build more land in response to the population pressure. That is, LDCs' increased investment in land accounts for most of the long-run increase in agricultural output, and agricultural output in the long-run has kept up with population increase.

But what will happen when there is no more "waste" land to be converted to agricultural land? To begin with, we can be quite sure this will never happen. As the available land for crops becomes more and more costly to transform into cropland, farmers will instead crop their existing land more intensively; that becomes more profitable than dipping into the pool of land unused for crops, because the unused land is relatively inefficient.

Evidence for this process can be seen for the international statistics showing that when population density is high, the proportion of land irrigated is higher, too. This may be seen particularly clearly in Taiwan and India where, after exploiting a large proportion — but by no means all — of the unused land, irrigation began in earnest.

Illinois is blessed with an endowment of land and

TABLE 3. CHANGES IN AGRICULTURAL LABOR FORCE, AGRICULTURAL PRODUCTION, AND TOTAL LABOR FORCE IN DEVELOPED COUNTRIES, 1950-60

	1950				1960			
	Agr. labor force	Culti-vated area	Index of agr. prod.[a]	Total labor force	Agr. labor force	Culti-vated area	Index of agr. prod.	Total labor force
USA	6,537	1,408	93.3	43,754	4,747	1,248	109.7	47,468
Canada	983	252	101.2	4,067	711	253	99.7	4,665
Denmark	386	26.7	91.5	1,356	336	27.5	115.7	1,447
Finland	539	23.7	88.3	1,173	458	26.1	121.3	1,229
Ireland	452	n.a.	92.5	951	359	n.a.	108.7	832
Norway	224	8.1	97.3	1,060	260	8.4	101.3	1,085
Sweden	580	35.1	100.8	2,296	401	31.0	100.7	2,278
United Kingdom	1,153	50.5	88.8	15,567	975	44.5	117.0	16,547
Austria	536	17.7	86.4	2,061	371	16.4	118.9	2,015
Belgium	332	n.a.	92.9	2,662	227	9.0	109.0	2,587
France	3,695	n.a.	90.2	12,183	2,802	n.a.	116.7	12,996
Germany, FR	2,316	n.a.	92.1	14,125	1,678	n.a.	112.3	16,617
Netherlands	520	10.5	90.8	2,990	407	10.1	117.7	3,225
Switzerland	333	n.a.	95.8	1,515	263	n.a.	108.7	1,756
Germany, DR	868	52.4		4,541	772	50.6		4,475
Hungary	1,200	57.5	n.a.	2,298	969	55.8	n.a.	3,165
Poland	3,295	n.a.	n.a.	6,858	3,009	n.a.	n.a.	7,753
Greece	1,099	23.2	80.8	2,246	1,128	31.3	126.7	2,358
Italy	6,111	n.a.	91.6	15,175	4,191	n.a.	113.0	14,905
Portugal	1,258		97.6	2,453	1,238	41.3	101.7	2,580
Spain	4,828	142.4	89.1	9,084	4,268	145.5	119.0	9,514
Yugoslavia	2,737	n.a.	76.6	4,477	2,645	n.a.	143.3	5,211
Australia	440	79.3	85.0	2,603	432	101.3	123.0	3,102
New Zealand	130	3.8	85.8	560	121	4.1	122.3	659
Japan	8,623	n.a.	86.5	21,831	6,853	n.a.	118.7	26,822

Source: Kumar, Population and Land in World Agriculture, appendixes.

[a] For definition of index of farm production, see Kumar, p. 201. Includes all European countries for which there are data.

water that has in the past made irrigation unprofitable. But now, with increased demand for food and new technological advances, irrigation is beginning to be important. Even in Champaign County, Illinois, where corn-and-soybeans land is as rich as any in the world even without irrigation, center-pivot moving-arm irrigation has appeared.

The capacity for replacing land with irrigation, new seeds, fertilizer, and new farming methods is vast, much greater than required by any presently conceivable population growth. And of course the capacity is not limited to what we *now* know how to do, but it will certainly increase greatly as we make new discoveries.

At one time most of Europe could not be used for crops because the soils were "too heavy." When a plow was invented that could farm the heavy soil, most of Europe suddenly became "arable" in the eyes of the people who lived there. Most of Ireland and New England originally were too hilly and stony to be farmed, but with backbreaking toil the stones were removed and the land became "suitable for crops." In the 20th century, bulldozers and dynamite have pulled out stumps that kept land from being cropped. And in the future, cheap water transportation and desalinization will transform what are now deserts into what will then be classified as "arable." The definitions change as technology and the demand for land develop. The notion of a fixed supply of land is as misleading as is the notion of a fixed supply of basketballs. That is, people *create* land — agricultural land — by investing their sweat and blood and money in it.

"You can even make agricultural land out of Mount Everest, but it would cost a fortune and be uneconomical to do so," is a common reply by those who worry that we are running out of land. But in most parts of the world new land can be bought and cleared for amounts that are considerably below the purchase price of already developed land in Illinois. Furthermore, the real cost of acquiring and clearing land nowadays is less than it was in the past when tree-cutting, stump-pulling, and irrigation-ditch-digging had to be done a great expense by hand or with the help of animals. Then, of course, there is the possibility of utilization of outer space and the planets. Buck Rogers stuff? Many respected scientists do not think so.

The key element in developing and harnessing the capacity to replace land with technology is increased demand — which arises from increased world income, increased population growth, and improved markets, so that farm produce can be bought and sold without the prohibitive transportation costs still found in most very poor countries.

Conversion of Agricultural Land to "Urban Sprawl"

Many people worry that population growth produces "urban sprawl," and that highways "pave over" and take away "prime farm land" from agricultural and recreational uses. First, let us get clear on the dimensions of the situation. There are 2.3 billion acres in the US, as of 1974. All the land for urban areas plus highways and nonagricultural roads and railroads plus imports totals only 61 million acres — just 2.7 percent of the total. Clearly there is very little competition between agriculture on the one side, and cities and roads on the other.

How about the trends? From 1920 to 1974, land in urban and transportation uses rose from 29 million acres to 61 million acres — a change of 32 million acres (1.42 percent) out of the total of 2,266 million acres in the US. During those 54 years, population increased from 106 million to 201 million people. Even if this trend were to continue — and population growth clearly is much slower than before — there would be an almost insignificant impact on US agriculture.

Lest you have doubts, here is the opening sentence from the US Department of Agriculture's 1974 *Our Land and Water Resources:* "Although thousands of acres of farmland are converted annually to other uses — urbanization, roads, wildlife, and recreation — and population has risen a third in 20 years, we are in no danger of running out of farmland. Increasingly efficient production methods" are the major factor in enabling the US to "ensure our domestic food and fiber needs" and yet use less land for crops than in the past — not because the land is being "taken" for other purposes but rather because it is more efficient to raise more food on fewer acres than in the past.

But what about the special agricultural *quality* of the land used by human habitation and transportation? Even if the total quantity of land used by additional urban people is small, the land that is used is of special value.

The loss of "prime land" seems to be a case of misunderstanding of economic principles. Take the example of a new shopping mall, called Market Place, near Champaign-Urbana, Illinois. The mall land has greater value to the economy as a shopping center than it does as a farm, wonderful though this Illinois land is for growing corn and soybeans. That is why the mall investors could pay the farmer enough to make it worthwhile for him to sell. An example should bring out the point.

Suppose that, instead of a shopping mall, the corn and soybeans farmer sold the land to a person who would raise a exotic new crop called, say, "whornseat," and the whornseat would be sold abroad at a high price. The land clearly would be more productive raising whornseat than corn, as shown by the higher profits the whornseat farmer would make as compared with the corn and soybeans farmer, and as also shown by the amount that the whornseat farmer is willing to pay for the land.

A shopping mall is similar to a whornseat farmer. It *seems* different, however, because the mall does not use the land for agriculture. Yet economically there is no real difference between the mall and whornseat farming.

One may say: "Why not put the shopping mall on inferior waste land that cannot be used for corn and soybeans?" The mall owners would like to find and buy such land — as long as it would be equally convenient for shoppers. But there is not any such wasteland close to town. And "wasteland" far away from Champaign-Urbana is like land that will not raise whornseat — because of its lack of shoppers *or* whornseat *or* corn. (The same reasoning explains why all of us put our lawns in front of our homes, instead of raising corn on the front lawn and putting the lawn miles away on "inferior" land.)

Effects of Population Growth on Available Recreation Land

The availability of recreational land and wilderness is another facet of the land supply that concerns us. People worry that increasing use of land for cities, roads, and agriculture will reduce the amount of recreational land in the US and elsewhere.

It would seem obvious that a larger number of people *must* imply less recreational land and the disappearance of wilderness. But as with many intuitively obvious statements about resources, this one is not correct.

The facts: recreational and wilderness land area has been growing by leaps and bounds during the period for which data are available. Land dedicated to wildlife areas and state and recreational parks has risen from 8 million acres in 1920 to 61 million acres in 1974. And the President's Commission in 1972 foresaw a further rise of about 37 percent from 1964 to 1980 in "pure recreation land outside towns."

Even more important than the number of acres of land for recreation is the *availability* to the potential use of recreational land and wilderness. Because of the increased means of transportation and the increased level of income to which population growth has contributed over the centuries, the average person in a well-off country now has far greater *access* to recreational land and wilderness than at any earlier time, greater than did a king 200 or 100 years ago, because of fast, safe transportation.

The effect upon the individual American can be seen in the increasing numbers of visits to principal recreation areas. Of course, one may look upon the increased numbers of visits as an indication that the wilderness is not so isolated anymore, and hence that it is less desirable. But that is the point of view of an 18th century prince who wished — and could afford — to enjoy the entire forest all alone. That imperial view differs from the basic democratic view that more people sharing in the enjoyment of something is good, even if the experience is not perfect for any one of them.

Conclusions

The world's total stock of agricultural land is increasing. Despite population growth, increased productivity leads to *larger* farms per farmer. And the US's good agricultural and recreational land is not being paved over.

My message is not one of complacency. I am *not* suggesting that we cease worrying about the supply of land, worldwide or regionally. Just as each homeowner must take care of his lawn lest it go to ruin, and just as every farmer must continually protect and renew his acres, so must every country take care that its stock of good land is increased and improved.

What I *am* suggesting is that there is no ground for the panic into which anecdotal accounts can throw us. And there is no basis in the data examined here for opposition to economic or population growth.

Comparative Economic Data for Selected Illinois Cities, January 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)		Employment (000)		Estimated work force unemployed (percent)	
	Jan. 1980	% change from Jan. 1979	Jan. 1980	% change from Jan. 1979	Jan. 1980	% change from Jan. 1979	Jan. 1980	% change from Jan. 1979	Jan. 1980	Jan. 1979
ILLINOIS	$185,327[a]	+252.0	3,437.6[a]	-2.3	$57,168[a]	+19.1	5,077	+0.4	7.1	5.0
NORTHERN ILLINOIS										
Chicago	116,509	+264.3	1,672.9	-3.6	45,584	+23.8	n.a.	n.a.	n.a.	n.a.
Aurora	5,576	+72.8	119.8	-7.2	603	+4.5	n.a.	n.a.	n.a.	n.a.
Elgin	2,442	+1,362.2	87.0	+1.8	676	+6.2	n.a.	n.a.	n.a.	n.a.
Joliet	620	-27.9	379.6	-5.9	390	+16.7	n.a.	n.a.	n.a.	n.a.
Kankakee	1,632	+728.4	79.2[b]	+0.7	268	+16.0	n.a.	n.a.	n.a.	n.a.
Rock Island-Moline	3,185	-19.9	124.6[c]	-3.8	1,247	+38.4	n.a.	n.a.	n.a.	n.a.
Rockford	10,827	+361.7	156.2	-4.6	905	-21.3	n.a.	n.a.	n.a.	n.a.
CENTRAL ILLINOIS										
Bloomington-Normal	9,029	+232.8	47.1	-3.6	985	+7.6	n.a.	n.a.	n.a.	n.a.
Champaign-Urbana	1,427	+54.7	51.5	-5.1	678	+5.9	n.a.	n.a.	n.a.	n.a.
Danville	6,831	+383.4	44.6	-6.3	242	+18.6	n.a.	n.a.	n.a.	n.a.
Decatur	7,478	+2,018.4	132.3	+5.7	585	+14.7	n.a.	n.a.	n.a.	n.a.
Galesburg	368	-0.2	31.1[b]	-1.5	158	+2.5	n.a.	n.a.	n.a.	n.a.
Peoria	7,483	+485.9	187.0	-5.7	1,573	+12.1	n.a.	n.a.	n.a.	n.a.
Quincy	432	+38.9	44.5	+8.8	265	+197.7	n.a.	n.a.	n.a.	n.a.
Springfield	4,072	+37.5	112.7	-9.4	1,922	-12.9	n.a.	n.a.	n.a.	n.a.
SOUTHERN ILLINOIS										
East St. Louis	n.a.	n.a.	23.8	-9.5	193	+3.2	n.a.	n.a.	n.a.	n.a.
Alton	3,988	-72.5	83.5	+1.3	132	-5.0	n.a.	n.a.	n.a.	n.a.
Belleville	3,428	+352.2	26.2	-5.0	361	+7.1	n.a.	n.a.	n.a.	n.a.
Carbondale-Murphysboro	n.a.	n.a.	34.0	-21.2	401	+25.7	n.a.	n.a.	n.a.	n.a.

Sources available upon request.

[a] Total for cities listed. [b] Includes immediately surrounding territory. [c] Includes East Moline. n.a. not available

Electric Service Utilities in Illinois

Electric service utilities in Illinois posted a 16.8 percent increase in total operating revenues for 1978. Most of the increase resulted from the recovery of fuel costs and general rate hikes. However, most of Illinois's electric-producing utilities experienced growth in operating expenditures above that of operating revenues in 1978. A combination of soaring fuel prices, winter storm damage, and a prolonged early-year coal strike increased expenditures considerably.

Most of Illinois's electricity is produced by coal. A 110-day coal strike closed most mideastern mines, resulting in Illinois utilities having to purchase expensive western coal. Although oil accounts for only a small percentage of the electrical service generated in Illinois, those utilities which generated a significant proportion of their electricity with oil were hit extremely hard by skyrocketing oil prices. In addition, many utility companies suffered damages when two severe ice storms swept through Illinois in early 1978.

Increasing utility rates necessary to defray rising operating expenditures has led to a slowing in the growth of demand for electricity. While the annual number of new customers has grown at a steady 1.6 percent rate since 1970, the increase in the growth rate of kilowatt-hour usage has slowed. Between 1970 and 1977 kilowatt hours consumed increased at a 4.2 percent average annual rate. In 1978 that growth slowed to 2.2 percent. Kilowatt-hour residential sales increased 3.3 percent in 1978 compared with an average annual increase of 4.7 percent between 1970 and 1977. This was the largest decline among all ultimate consumers. In 1978, kilowatt-hour residential sales accounted for 27 percent of total kilowatt-hour sales to ultimate consumers, while industrial and commercial sales represented 35.2 percent and 25.8 percent respectively.

Electrical rates charged by public utilities are a function of service costs. The cost of delivering electrical service to residential and commercial consumers is higher than the cost of delivering service to industry. Revenues from residential sales, thus, accounted for 34.1 percent of total revenues received from ultimate consumers in 1978. Commercial and industrial revenues accounted for 30.8 percent and 26.8 percent respectively of total revenues received from ultimate consumers.

On the production side, Commonwealth Edison Company is the largest producer of electricity in Illinois. Providing service to 2.9 million customers in northern Illinois, Commonwealth Edison supplied over 62 percent of all kilowatt hours consumed during 1978. Commonwealth Edison's operating revenues from sales of electricity increased 16.6 percent in 1978. The company's operating expenditures matched that 16.6 percent increase. Fuel costs led the increase, rising 27.3 percent. Most of this rise can be attributed to advancing coal prices. A smaller percentage increase in the price of uranium helped to keep Commonwealth Edison's fuel price jump well below the Illinois industry average.

During 1978, almost 48 percent of the 62 billion kilowatt hours produced by Commonwealth Edison was generated by nuclear power. Its nuclear power generation was up 15.3 percent in 1978, keeping Illinois second in nuclear power generation. Nuclear power will continue to grow in importance at Commonwealth Edison as stations currently under construction in LaSalle County, Byron, and Braidwood are put into operation. Projections are that by 1985, 60 to 65 percent of Commonwealth Edison's kilowatt-hour production will be produced by nuclear generation.

The second largest producer of electricity in Illinois is Illinois Power Company. In 1978, Illinois Power produced 13.3 percent of the total kilowatt hours consumed in the State. Illinois Power provides service to a number of central Illinois areas, including the Bloomington-Normal, Decatur, Champaign-Urbana, and Danville areas. Over 92 percent of the electricity produced by Illinois Power is generated by coal, with oil currently accounting for the remainder. Expenditures for coal and oil constituted 44.3 percent of total operating expenditures in 1978. Fuel costs in 1978 were up 39 percent from the previous year. Illinois Power hopes that with the completion of its nuclear power generating station at Clinton sometime in 1982, a slowing in the growth rate of fuel expenditures can be realized. Most public utilities in Illinois experienced fuel expenditure increases comparable with those of Illinois Power.

Expenditures are currently increasing at a rate faster than revenues at most Illinois public utilities. Continued increases in fuel costs and the growing expense of meeting environmental regulations should ensure a persistent expenditure squeeze on both the utilities and the ultimate consumer.

THOMAS B. BRYAN

TABLE 1. ILLINOIS ELECTRIC UTILITIES - SUMMARY OF ELECTRIC SALES BY CLASS OF SERVICE

Class of service	Revenue			Kilowatt hours		
	1970	1977	1978	1970	1977	1978
Residential sales	$ 477,101,641	$1,056,240,395	$1,221,488,989	18,295,560,292	25,303,066,474	26,135,269,559
Industrial sales	268,167,590	795,738,000	959,183,143	24,276,188,655	32,783,040,509	34,046,580,353
Commercial sales	401,290,372	937,304,424	1,104,672,202	17,592,026,431	23,489,382,018	24,910,234,677
Public street and highway lighting sales	13,419,085	25,315,973	26,860,136	661,641,500	761,023,346	737,824,606
Other sales to public authorities	61,246,888	226,812,917	261,920,378	6,240,686,012	10,745,751,885	10,528,732,704
Sales to railroads and railways	5,574,766	8,252,955	9,668,709	339,758,507	336,194,227	347,628,974
Total sales to ultimate consumer	$1,226,800,342	$3,049,664,664	$3,583,793,557	67,465,861,397	93,418,458,459	96,706,270,873
Sales for resale	44,501,755	129,134,273	132,106,846	7,215,215,755	6,083,451,999	5,012,259,971
Interdepartmental sales	14,307	133,960	86,819	571,933	2,516,727	1,141,481
Total sales of electricity	$1,271,316,404	$3,178,932,897	$3,715,987,222	74,681,649,085	99,504,427,185	101,719,672,325
Other electric operating revenues	11,653,288	23,576,178	26,132,895			
Total electric operating revenues	$1,282,969,692	$3,202,509,075	$3,742,129,117			

Source: Illinois Commerce Commission

TABLE 2. ILLINOIS ELECTRIC SERVICE UTILITIES - SALES TO ULTIMATE CONSUMERS

Utility (by size)	Revenue			Kilowatt hours		
	1970	1977	1978	1970	1977	1978
Commonwealth Edison Co.	$ 869,332,345	$2,029,335,386	$2,377,861,361	45,656,785,394	59,700,687,795	62,306,632,325
Illinois Power Co.	143,521,743	364,997,797	427,905,411	7,972,779,788	12,131,484,033	12,697,949,116
Central Illinois Public Service Co.	87,134,836	241,527,536	295,087,698	4,280,084,082	6,506,364,204	6,560,271,309
Central Illinois Light Co.	49,270,355	181,098,596	213,126,418	2,703,846,185	4,375,796,999	4,737,058,546
Union Electric Co.	37,712,383	81,605,970	102,332,983	2,814,965,746	3,323,397,874	3,354,946,463
Electric Energy, Inc.	13,730,459	87,220,769	95,944,520	2,777,725,919	5,578,212,966	5,183,489,833
Iowa-Illinois Gas and Electric Co.	17,929,054	44,463,986	48,793,129	906,341,198	1,282,321,447	1,321,522,630
Interstate Power Co.	2,583,456	5,496,569	6,525,462	101,979,026	152,640,906	161,308,469
Sherrard Power Co.	2,111,049	5,347,753	6,047,588	78,041,341	128,951,497	138,525,136
Mt. Carmel Public Utility Co.	1,652,947	4,803,463	5,982,746	75,510,462	122,514,256	123,643,893
South Beloit Water, Gas and Electric Co.	1,785,565	3,709,082	4,124,573	96,926,782	114,476,449	119,379,025
Cedar Point Light and Water Co.	36,150	57,757	61,668	875,474	1,610,033	1,544,128
TOTAL	$1,226,800,342	$3,049,664,664	$3,583,793,557	67,465,861,397	93,418,458,459	96,706,270,873

Source: Illinois Commerce Commission

Illinois Business Indexes

Item	January 1980	December 1979	November 1979	October 1979	January 1979
Leading indicator (1969=100)	91.1[a]	92.0[a]	92.7	93.3	94.2
Coincident indicator (1969=100)	156.2[a]	155.6[a]	152.9	152.0	144.3
Employment-manufacturing (in thousands)	1,226.6[a]	1,158.6	1,157.5	1,183.1	1,236.4
Average weekly hours-manufacturing	40.9[a]	40.9	41.4	41.0	39.5
Weekly earnings-manufacturing	$308.3[a]	$312.5	$308.9	$303.4	$273.9
Layoff rate-Chicago	6.8	4.7	8.6	6.4	4.2
Ordinary life insurance sales (in millions)	n.a.	$1,811	$1,513	$1,625	$1,069
Retail sales (in millions)	n.a.	$4,966	$4,251	$4,056	$3,096
Coal production (in thousands)	5,641	4,863	5,017	5,916	4,600
Petroleum production (in thousands)	1,935	1,937	1,840	1,961	1,688
Vendor performance (percent)	54.6	55.5	51.6	50.5	80.1
Building permits (in thousands)					
Residential housing units	0.95	2.03	2.34	3.74	1.1
Value of residential housing	$35,044	$69,279	$88,867	$144,083	$42,366
Value of nonresidential housing					
Industrial buildings	$26,212	$25,012	$27,900	$45,160	$12,282
Office, banks, and professional buildings	$29,490	$53,196	$61,000	$58,630	$21,499
Stores and other mercantile buildings	$18,723	$22,330	$28,939	$35,404	$8,020
Other	$25,264	$23,176	$49,884	$52,316	$7,951
Consumer price index					
North Central US	n.a.	125.1	n.a.	122.6	n.a.
North Central/population more than 4,000,000	n.a.	126.3	n.a.	123.2	n.a.
North Central/population 385,000 to 1,250,000	n.a.	124.6	n.a.	122.3	n.a.
North Central/population 75,000 to 385,000	n.a.	123.7	n.a.	121.9	n.a.
North Central/population less than 75,000	n.a.	123.0	n.a.	122.0	n.a.
Chicago	230.3	228.4	225.9	221.8	n.a.
St. Louis	n.a.	n.a.	225.7	n.a.	203.4
Farm prices	114	111	107	109	110
	1979:III	1979:II	1979:I	1978:IV	1978:III
Personal income (in millions)	$113,682	$110,286	$106,920	$103,397	$101,587
Total labor and proprietors' income by place of work					
By type					
Wage and salary disbursements	$73,812	$71,737	$69,750	$67,259	$66,220
Other labor income	7,788	7,466	7,084	6,817	6,714
Proprietors' income	7,122	7,185	6,867	6,464	6,432
Farm	1,772	2,027	1,725	1,349	1,477
Nonfarm	5,350	5,158	5,142	5,116	4,954
By industry					
Farm	2,092	2,339	2,025	1,630	1,751
Nonfarm	86,630	84,048	81,676	78,910	77,615
Private	75,266	73,168	71,033	68,831	67,672
Ag. Serv., for., fish., and other	204	197	188	180	177
Mining	929	918	881	880	851
Construction	4,904	4,821	4,752	4,634	4,574
Manufacturing	27,162	26,602	25,413	24,320	23,954
Nondurable goods	8,261	8,092	7,930	7,684	7,671
Durable goods	18,902	18,511	17,483	16,637	16,284
Transportation and public utilities	7,310	6,875	6,793	6,554	6,265
Wholesale trade	6,646	6,468	6,302	6,202	6,277
Retail trade	8,206	8,084	7,943	7,767	7,581
Finance, insurance, and real estate	5,466	5,255	5,149	5,045	5,008
Services	14,438	13,947	13,613	13,248	12,985
Government and government enterprises	11,363	10,880	10,643	10,080	9,943
Federal, civilian	1,841	1,811	1,795	1,783	1,735
Federal, military	521	524	513	507	496
State and local	9,001	8,545	8,335	7,790	7,712
Income by place of work					
Wage and salary disbursements	73,812	71,737	69,750	67,259	66,220
Farm	284	278	267	251	244
Ag. serv., for., fish., and other	128	123	116	111	108
Mining	713	707	680	680	662
Construction	3,996	3,925	3,840	3,716	3,670
Manufacturing	23,464	23,027	22,054	21,112	20,796
Nondurable goods	7,207	7,073	6,950	6,736	6,726
Durable goods	16,257	15,954	15,104	14,375	14,070
Transportation and public utilities	6,177	5,812	5,759	5,550	5,287
Wholesale trade	5,779	5,636	5,501	5,406	5,490
Retail trade	6,975	6,891	6,759	6,609	6,471
Finance, insurance, and real estate	4,268	4,125	4,053	3,942	3,931
Services	10,999	10,648	10,381	10,090	9,899
Government and government enterprise	11,028	10,563	10,340	9,792	9,660
Federal, civilian	1,756	1,729	1,715	1,704	1,658
Federal, military	521	524	513	507	469
State and local	8,751	8,311	8,111	7,581	7,507

Sources available upon request.

[a] preliminary. n.a. not available

Income and Employment Data

Each year the Bureau of Economic Analysis of the US Department of Commerce makes available to the Bureau of Economic and Business Research its estimates of personal income and employment for the counties of the State. The reports give data for the second year before and several earlier years; the recently received 1979 reports include the income and employment data for 1972 through 1977.

The BEA bases its estimates primarily on administrative records of federal and state government programs, with additional information from various censuses or from nongovernment sources. The most important sources are the state unemployment insurance programs, the Social Security Administration insurance programs, and the Treasury Department's tax programs. Census data include surveys that are part of the Censuses of Agriculture and Population.

Personal income is defined as current income of residents of an area from all sources. It is measured after deduction of personal contributions to social security, government retirement, and other social insurance programs but before deduction of income and other personal taxes. It includes income received from business, federal, state, and local governments, households and institutions, and foreign governments. Personal income consists of wages and salaries (in cash and in kind, including tips and bonuses as well as contractual compensation), various types of supplementary earnings termed other labor income (the largest item being employer contributions to private pension, health, and welfare funds), the net incomes of owners of unincorporated business (farm and nonfarm with the latter including the incomes of independent professionals), net rental income, royalties, dividends, interest, and government and business transfer payments (consisting in general of disbursements to persons for which no services are rendered curently, such as unemployment benefits, social security payments, medicare benefits, retirement pay of governmental programs, and welfare and relief payments).

The BEA employment series measures the number of full- and part-time wage and salary employees plus the number of proprietors of unincorporated businesses. The latter includes farmers, independent professional practitioners, nonfarm business entrepreneurs, and others in self-employment status. The employment estimates are generally comparable in quality with BEA's estimates of labor and proprietors' income. They are mostly based on the same data sources and derived by the same general estimating procedures. However, unlike labor and proprietors' income, employment is measured in terms of place-of-work; no residence adjustment is made.

Detailed BEA income and employment data are available for each of the 102 counties and 10 SMSAs of Illinois for 1971 through 1977. A charge of $20.00 will be made for the entire set. A minimum charge of $2.00 will be made for individual county requests totaling 3 counties or less, and $1.00 per county for additional counties requested. A charge of $12.00 will be made for the 1977 transfer payment data for the 102 Illinois counties. Those interested may write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois 61801. Please make check payable to the University of Illinois.

Now Available

Farm income and expenditure estimates for Illinois counties from 1969 to 1977 are now available. The farm income estimates are derived by the Bureau of Economic Analysis of the US Department of Commerce from three basic sources: cash receipts from marketings of crops, livestock and livestock products; government payments to Illinois farmers; and imputed income and rent received.

The economic situation of Illinois farmers depends heavily on income received, production expenses incurred, and the value of inventory changes which take place in any given year. Changes in the value of inventory may result from price fluctuations or changes in actual holdings in livestock or crops. The BEA estimates of production expenses include direct material purchases of feed, livestock, seed, and fertilizer. In addition, labor expenses in the form of wages, perquisites, and social security taxes are included in the cost of production. Other production expenses include repair and operation of capital items, depreciation, interest, rent, taxes, and other miscellaneous expenses.

In addition to estimating total income from cash receipts and other sources, total production expenses, and the value of inventory change for each of the counties in Illinois, the BEA farm income and expenditures data also include a separate derivation of farm labor and proprietors' income.

The detailed BEA farm income and expenditures estimates may be used to examine such factors as recent trends in government payments to Illinois farmers, the composition of farm income, and the pattern of production expenses from 1969 to 1977.

Those interested in obtaining the BEA farm income and expenditure information should contact the Bureau of Economic and Business Research at the University of Illinois. A fee of $15 is charged for the entire set, with a minimum charge of $2 for requests for five counties or less.

Second-class postage paid at Urbana, Illinois

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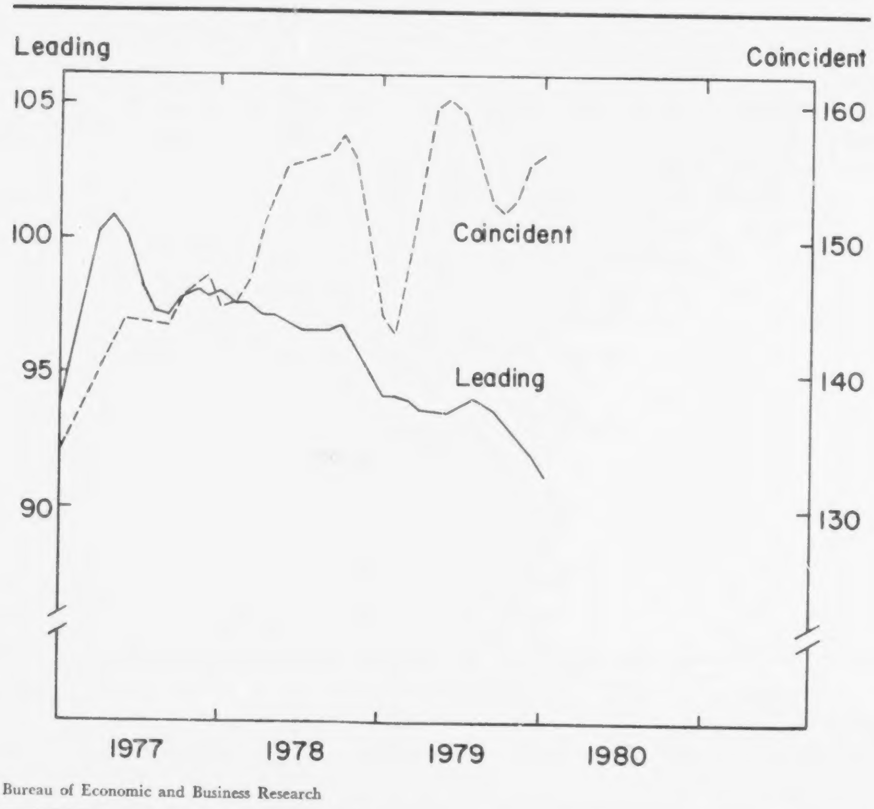
Illinois Economic Indicators

The leading indicator dropped slightly in January. This decline has continued for the last few months. Building permits have sharply decreased, probably due to high interest rates. Vendor performance also showed a slight decrease. The layoff rate in manufacturing inched up slightly on a seasonally adjusted basis. Average weekly hours remained the same.

The coincident indicator remained stable in January. Weekly earnings in real terms suffered a slight loss and number of employees in the nonagricultural sector decreased a little, both on seasonally adjusted bases.



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The Worst Prospect in 50 Years

V LEWIS BASSIE

The economy is generally viewed in terms of trends: growth is thought to be the normal state of affairs, with minor interruptions as exceptions; government is big and getting bigger; inflation is high and getting worse. Nobody wants to believe that we live in an inherently unstable economy. On the theoretical side this leads to misunderstanding of the boom, on the policy side to mistakes of diagnosis and prescription.

Now the Carter Administration has lined up monetary and fiscal policy to break the boom — euphemistically called "solving our number one problem, inflation." Monetarist and conservative philosophizing on high interest rates and budget balancing has convinced them that recession is the way to go. Actually, nobody knows how ruinous the consequences may be when the boom breaks.

To view downturns as mere incidents is to miss their significance as an outgrowth of what went before. Furthermore, the fact that the preceding upsurge itself reflected cyclical components and was not all dependable growth is passed over. Since the end of World War II, there have been only minor recessions, giving rise to the belief that that is the only kind possible. This is a state of mind similar to that reached in 1929. Today the expected recession is not feared by economists and officials who are content to "look across the valley."

V Lewis Bassie, professor emeritus of economics, was director of the Bureau of Economic and Business Research from 1948 to 1976. Before, he served in government agencies for 13 years. His last government post — from 1945 to 1948 — was Assistant to the Secretary of Commerce. Earlier, he held positions in various agencies — as Chief Production Analyst in the War Production Board, adviser on US Foreign Trade in the Foreign Economic Administration, and senior economist with the Department of Agriculture and with the Federal Reserve Board. In his years at the University of Illinois, he specialized in the analysis of current economic developments. He is author of a major book titled *Economic Forecasting.*

The Double Carousel

In contrast, a way to understand the present position is to think in terms of two basic business cycles: the real cycle in production, investment, real income and consumption, and in the stocks of goods and facilities that are created by and used up in those processes; and the credit cycle which builds or runs off stocks of money and money substitutes by expansion and liquidation of debt. Both cycles are governed by similar stock-flow relationships and the link between them is the price system. The flows are amplified by the Keynesian multiplier, and the stocks govern the turning points.

The interplay of these cycles carries the economy to extremes that cannot be sustained: When one accelerates, it pulls the other along, and when the other in turn speeds up, it puts new life into the first. In the boom, as inflation is stimulated, there is increased willingness to hold stocks and to incur debt for this purpose, and high activity seems for a while to justify both, but only to the point of the downturn, when the excesses are revealed. In the trough, the liquidation of stocks also overcarries. These cycles may be represented by circular flow diagrams and the combination of the two I call the double carousel.

Business cycles are, of course, modified by extraneous events. Between the two world wars, business movements were practically uncontrolled and undisturbed. With prices stable or drifting downward, the real cycle was dominant, and in the 1920s it led to the saturation of all the investment markets. This primary cyclical pattern, a pattern of great regularity, was modified only by minor dips and recoveries in particular components, especially business inventories. The period following World War II was quite different, for both domestic and international reasons, so that no undisturbed cyclical pattern could de-

Export or Burn? American Grain and the Energy Equations *By Folke Dovring / Page 9*

velop. Prosperity was supported and prolonged — by a succession of government interventions in recessions; by international disturbances that stimulated new bursts of activity; and by economic growth all around the globe, with the freeing of international trade and investment. This prosperity now seems to be reaching its end. New minor "crises" generate spurts of speculation but hardly any boost for real investment, while real consumption is being depressed by inflation and protectionism is reviving almost everywhere.

At the peak of the boom, redundancy in stocks of all kinds tends to develop, and after the downturn, the excesses have to be liquidated. The way to reduce surplus real stocks is to cut back production and wait until consumption and disinvestment bring them down; but since these stocks are mostly very durable, it is a slow process, with unemployment remaining high (witness unemployment of over one-sixth of the labor force in 1939, after the 1929 peak had again been recovered). The way to reduce surplus money stocks is, in the first instance, to buy other assets, which drives up prices and depreciates money's value, and later to pay off or write off debt, and since writing off is speedier, it tends to dominate a major decline through spreading defaults and bankruptcies (again look at the 1930s). There is nothing in the powers of the government to reverse a concerted movement of this kind, even if any government were willing to accept the inflationary consequences of trying.

Bringing this boom to an end did not require the strong deflationary action that has recently been taken. Various indicators were already signaling a reversal — the squeeze on labor's real earnings, the tapering off of the rise in instalment credit, the 10 percent decline in housing starts, the shift of the high-employment federal budget from deficit to surplus, the leveling off of industrial production, and the instability of sensitive commodity prices. The impact of the new policy was merely to hasten the downturn and ensure that the decline will be more than minor. Once put in reverse, the cycles will work as hard on the downside as they did earlier on the rise. This not only means the decline will be deep, it will also be prolonged.

The Propagation of Error

There is a widespread misconception which holds that real investment has been deficient in recent years. Actually, it was above 10 percent of real GNP (gross national product) in 1978–79. This is fully up to par for our economy, a full percentage point above the average for the peacetime years, 1955–64, though low for other countries. In manufacturing, investment has been adequate to keep capacity moving up steadily, and with production failing to grow in the last 12 months, it has depressed the rate of utilization to the point that new investment commitments must fall.

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Despite the contrary evidence, this misconception has been used to promote a secondary fallacy, namely, that taxes should be cut, especially on capital gains, to increase savings. But increased saving is just the wrong prescription in conditions of stagflation. The effect of increased saving in the real cycle is to halt the growth of output and investment at some point conceived as an equilibrium. Its effect in the credit cycle is to pile more onto the surplus of money and spur the bidding up of prices, first in financial markets and then throughout the economy. Clearly, the main result is to enrich the affluent few at the expense of aggravating both the stagnation and the inflation.

At a still further remove, there is a tertiary error, which states that expanded saving will renew growth in productivity. This amounts to moving to a higher order of improbability in the concept of trickle-down improvement. What is really needed to improve investment for higher productivity is an upsurge in demand and output, but given the cyclical position and the damage added by misguided policy, this is a prospect in the realm of fantasy. However, productivity does tend to recover in recessions, as management cuts back the excess employment taken on in the boom.

It is unfortunate that error should be the source of policy. However, in the confusion bred by instability, diagnoses that provide a "cure" desired by prominent people can be made to sound plausible and may be promoted by mass media looking for something interesting to say.

Exacerbating Trends

There are two little-noted long-term trends — institutional changes if you prefer — that are important in this picture. The first is the solidification of control over prices by industry; since the end of World War II business has striven to effectuate administered pricing practices which will minimize price competition. The second is the growth of the propensity to speculate with borrowed funds; this has spread from the financial community to the population at large, whose awareness of profit opportunities in speculative ventures is increasingly acute. These trends exacerbate the cyclical swings; they have contributed much to the inflation; they will also worsen the situation on the decline.

The private price controls have grown greatly in potency. In the 1930s it was observed that the fixity of prices in key industries put the entire burden of the decline on production and employment. Now the practices variously described as conscious parallelism or tacit collusion prevail in many more industries. They have been spread and tightened by conglomerate mergers and multinational extensions. The growing concentration of control has made the decline in price competition so pervasive that it is hardly appropriate to speak of free market forces. Many industries can now put prices up and keep them up through recessions. That the most efficient corporations may remain profitable is not necessarily helpful: even today the most affluent, like big oil, cannot find outlets for investment of the surpluses they are accumulating. The more profits derive from raising prices rather than production, the more will consumption be doubly depressed.

Two other aspects of this pricing trend may be noted. First, the private price controls provide opportunities for offsetting government attempts to cushion declines. In earlier articles, I showed how government deficits in recessions have been increasingly absorbed into corporate surpluses (IBR, Dec. 1975 and Feb. 1976). Thus, the government sector is weakened and the corporate sector strengthened at its expense.

Second, and more disturbing, the result is a generalization of the transit syndrome. This disease of the local transit system begins with a decline in revenues, which is met by raising controlled prices, so more passengers are driven away, service is curtailed, traffic again falls, and through successive stages, the decline in the enterprise often ends fatally. Slumpflation is partly the mark of a similarly sick economy.

Heyday of the Lender

Money is created in credit transactions, not primarily in government but in the private economy. During the boom, the expansion of credit soared. In both 1978 and 1979, the total raised in US credit markets was nearly $500 billion, with four-fifths going to nonfinancial sectors. At this $400 billion annual rate, the increase in debt for nonfinancial borrowers was more than twice the increase in GNP. It was close to three times the excess of gross investment over capital consumption allowances. The country has been floundering in a flood of credit.

Economists have long called for restraining the growth of the money stock, but instead it has accelerated. They spoke as if the Fed had the necessary powers, but it could not even keep many banks under its jurisdiction. New legislation, after the damage was done, has been enacted. Earlier for several years the regulatory agencies — not just the Fed but the comptroller and the deposit insurers — have been serving the special interests of the financial institutions under their jurisdiction, trying to keep each group of institutions profitably healthy and free of competitive disadvantages.

The door was thus opened to an array of new forms of money, accelerating the expansion of the total stock. Checks or similar orders can now be written against various kinds of savings and time deposits, even money market mutual funds, and credit cards may be more acceptable than cash; standby credit and automatic transfers prevent overdrafts; repurchase agreements give fast access to cash, as do certificates also, though with some penalties. The confusion is such that nobody knows just what money is nowadays, and past relationships are obsolete. The regulators have created opportunities and benefits for lenders, but not for the people generally.

As for interest rates, they too are instruments for transferring wealth to the wealthy, the group with ample funds to lend. Competition is still important in determining rates, because funds must be kept in earning assets, but the rates are not without monopolistic elements. These come to a focus in the prime rate, a leadership phenomenon with which all banks keep up; published daily, it tells them what to charge, while maintaining their own margins over the prime for particular types of loans. In the instability of the 1970s the prime took the lead on the advance; then it was held high, lagging on the declines. Demand for credit stays high in the early stages of recession, as business temporarily has increased need for liquidity, and fear of risks restrains lending. In the last few months, rates pushed to new, extremely high peaks, in part because the authorities gave the word of approval and freed the banks from any official reaction, any jawboning even, from a government beguiled by claims of fighting inflation.

The banks take advantage of this official collaboration despite being among the chief builders of inflation. What they are selling is credit and the more credit they sell, the greater is the spur to inflation. So high interest rates are a great advantage in having their own prices and incomes used by the authorities as a way of restraining the inflation of others' prices and incomes. But banks do not want restriction of their own volume of business, and their strong influence with the authorities results in giving them high rates without real tightening of money. With a few incidental exceptions, high interest rate policy is the only kind of tight money policy we have ever had in this country.

Adding speculation to this picture aggravates the instability. New games for the speculator have appeared and expanded. Through futures, options, and other devices, anyone can gamble on stocks, on commodities, on real estate, on collector's items, on foreign exchange and interest rates, on the other games specifically called gambling. During the boom, this had lifted debt without real merit to new peaks and created loose funds for pushing up prices. Inflation and interest rates build on each other and also build demands for credit, which then overbuilds the boom and magnifies the volume of shaky debt that will have to be liquidated after the downturn. Never has debt been so greatly blown up, possibly never again will its liquidation be more depressing.

The Politics of Instability

The idea that government is responsible for inflation has come to be accepted even in Washington. At best it is only partly true, and not in the ways it is said to be. The trouble is not with the budget or the bureaucracy, as doctrinaire opponents of government assert, it is with the politicians, the Administration and the Congress. The two cycles that have blown up the boom are primarily phenomena of the private economy, but government has contributed because the politicians are eager to curry favor and become partners with the owners of wealth. There are a number of exceptions, of course, who work conscientiously for the public good, but the dominant group needed to put legislation through acts with all possible delay, timidity, misdirection, and subservience to private power.

The complaints against the federal budget are not well founded. Inflation is not primarily the result of government spending or deficits. Expenditures were pushed up in 1975 by the recession, but they have been rising more slowly than GNP since. Direct claims on resources through government purchases of goods and services have risen only about half as fast. During the last two years, the impact of the budget has been negative: from a large high-employment deficit, it has swung over to a substantial high-employment surplus, for a total deflationary swing of almost $50 billion.

Nor has government borrowing been the villain it is said to be. There is no reason to think that government use of credit is more inflationary than private use of credit, and except in 1975 and 1976, the government has not taken more than a sixth of the funds raised in US credit markets by nonfinancial borrowers. As inflation got worse, the federal share of the increments of debt fell from 25.4 percent in 1976 to 13.4 percent in 1978 and to less than 10 percent in 1979.

If government has erred on the side of inflation, it was in providing too much stimulus earlier. Instead of letting the rise in revenues eliminate the deficits, as the theory of the automatic stabilizer would require, the politicians sought to gain support by cutting taxes — particularly to favor the inflators who have been gaining the fastest increases in income and help them save. The effects were not what was hoped, because the windfalls provided in this way add much less to real production than ordinary income would and add much more to the bidding up of existing assets. Leaving funds with those who already have good incomes can hardly provide jobs for the unemployed, but it helps reduce private borrowing, thus translating private into government deficits.

Despite all the fallacies in it, the campaign to "cut government down to size" will continue. The objective is not really to improve the economy but to effect a transfer of power from the public to the private sector. To whom? Not the individual worker or citizen! A majority of these see no real choice in the present political arrangements and stay home on election day. It can only be transferred to the already powerful, to the corporate sector.

The further efforts to balance the 1981 budget completely by cutting expenditures are just part of the misguided policy that courts disaster. They will add a little to the deflationary impact, and that little will further depress the real cycle. Hence, it will add to the already growing underutilization of capacity and ensure that capital spending will join other key components on the skids.

That the budget can turn out to be balanced in 1981 is improbable. As usual in recessions, unemployment compensation will rise, the government will try something to sustain the economy, probably something costly but with little effect, and at the same time revenues will fall as national income declines. For these reasons, deficits rise in recessions, although for political reasons, surpluses are not forthcoming in recoveries.

The top financial corporations in particular have led the campaign to put across the present policy. It fits their desire to give greater gains to the owners of wealth but makes no sense for the economy as a whole. Their temporary success shows the power of self-serving propaganda, endlessly repeated by executives, employees, consultants, experts, and lobbyists. In its current acceptance, it is in effect a national policy by and for a particular group. Over the longer term, a final solution cannot be achieved by public relations methods involving support by the mass media. When the policy fails, new solutions must be sought in the facts of progress, welfare, and equity.

The Worst Can Happen

The recession of 1974–75 did not set a limit on declines, it merely showed that deflationary cyclical forces are alive and potent. Consider the potential losses as real and credit cycles interact. In the real cycle, the Depression showed that there is no floor under private investment much above zero. In 1979 gross investment rose to a rate of almost $400 billion and consumer durables to over $200 billion. In the credit cycle, private debt typically swings over to liquidation. In 1979 funds being raised by private borrowers reached a rate of $350 billion. The magnitudes are so large that even much less than the potentials will put the situation out of control.

Policy could hardly be worse than deliberately trying to break a boom with a conjuncture of peaks in the two cycles. In 1929, the Fed's tightening to curb stock market speculation had little effect in starting the Depression, and any it did have was accidental. Today, the measures adopted are much more extreme, fully premeditated, and may bring on the depression of the 1980s.

The only possible justification for this is the intention to watch the situation closely and release the brakes quickly (though not so soon as to reinstate inflation). This fails to recognize that the timing of reactions will be perverse. The lag in disinflation will extend beyond the point where the real economy has fallen too far; the transit syndrome, wage contracts, other term obligations, and compensatory government policy will keep it going. Another mistake is to think that the policy measures have symmetrical effects; the cyclical forces are too powerful and the positions of businesses and consumers will be too much changed to enable them to resume operations as before.

What cannot be foretold are the sociopolitical changes that will occur as unemployment rises to double-digit rates. The people, in contrast with 1929, are disillusioned with both government and big business. They are frustrated and cynical. In a depression, anger will rise and lawlessness will swell. It is hardly comprehensible, and indeed shocking, that anyone should want to take chances on the worst that could happen.

Comparative Economic Data for Selected Illinois Cities, February 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)	
	Feb. 1980	% change from Feb. 1979	Feb. 1980	% change from Feb. 1979	Feb. 1980	% change from Feb. 1979
ILLINOIS	111,222[a]	-0.4	3,462.5[a]	-3.2	$52,854[a]	+8.0
NORTHERN ILLINOIS						
Chicago	50,590	-26.6	1,663.7	-3.1	40,924	+8.5
Aurora	2,376	-17.9	110.4	-18.6	586	+0.8
Elgin	550	-53.7	92.1	-5.2	642	-7.2
Joliet	1,619	-37.4	395.2	-3.6	372	-0.8
Kankakee	343	-50.9	76.4[b]	+0.6	274	+16.5
Rock Island-Moline	9,421	-21.6	127.1[c]	-1.3	1,225	+1.9
Rockford	11,593	+194.4	155.1	-4.5	996	+2.8
CENTRAL ILLINOIS						
Bloomington-Normal	780	-81.8	49.4	-1.9	1,147	+24.1
Champaign-Urbana	1,624	+129.0	52.5	+7.1	733	+11.7
Danville	855	+49.4	45.9	-2.7	236	-4.0
Decatur	500	-97.3	130.3	+1.0	562	+2.9
Galesburg	53	-94.8	30.9[b]	-0.3	157	-0.6
Peoria	24,916	+1,187.6	197.0	-3.6	1,551	+6.4
Quincy	1,568	+304.1	43.6	-1.8	278	+11.4
Springfield	3,319	-14.1	128.3	-2.9	2,972	0.9
SOUTHERN ILLINOIS						
East St. Louis	n.a.	n.a.	23.6	-5.9	213	+10.1
Alton	254	-79.9	76.3	-7.5	149	-3.9
Belleville	590	-54.7	28.2	-0.3	371	+33.2
Carbondale-Murphysboro	271	-27.1	36.5	-5.1	368	+24.7

Sources available upon request. n.a. not available.

[a] Total for cities listed. [b] Includes immediately surrounding territory. [c] Includes East Moline.

Illinois Business Indexes

Item	Feb. 1980	Jan. 1980	Dec. 1979	Nov. 1979	Feb. 1979
Leading indicator (1969=100)	90.6[a]	91.2[a]	92.0	92.7	94.2
Coincident indicator (1969=100)	154.4[a]	155.2[a]	155.3	152.9	142.9
Employment - manufacturing (in thousands)	1,217.7[a]	1,226.6	1,158.6	1,157.5	1,230.0
Average weekly hours - manufacturing	40.6[a]	40.9	40.9	41.4	40.7
Weekly earnings - manufacturing	309.9[a]	308.3	312.5	308.9	287.4
Layoff rate - Chicago	6.3	6.8	4.7	8.6	4.5
Ordinary life insurance sales (in millions)	n.a.	n.a.	$1,811	$1,513	$1,118
Retail sales (in millions)	n.a.	n.a.	$4,966	$4,251	$3,258
Coal production (in thousands tons)	5,469	5,641	4,863	5,017	4,123
Petroleum production (in thousands barrels)	1,800	1,935	1,937	1,840	1,478
Vendor performance (percent)	40.7	54.6	55.5	51.6	76.9
Building permits (in thousands)					
Residential housing units	1.16	0.95	2.03	2.34	1.83
Value of residential housing	$42,379	$35,044	$69,279	$88,867	$55,292
Value of nonresidential housing					
Industrial buildings	$115,103	$26,212	$25,012	$27,900	$20,603
Office, banks, and professional buildings	$27,987	$29,490	$53,196	$61,000	$14,788
Stores and other mercantile buildings	$18,296	$18,723	$22,330	$28,939	$18,850
Other	$24,775	$25,264	$23,176	$49,884	$10,788
Consumer price index					
North Central US	n.a.	-	125.1	-	112.4
North Central/population more than 4,000,000	n.a.	-	126.3	-	112.7
North Central/population 385,000 to 1,250,000	n.a.	-	124.6	-	112.7
North Central/population 75,000 to 385,000	n.a.	-	123.7	-	111.8
North Central/population less than 75,000	n.a.	-	123.0	-	111.7
Chicago	232.7	230.3	228.4	225.9	202.6
St. Louis	-	232.7	-	225.7	-
Farm prices	112	114	111	107	116
	1979:III	1979:II	1979:I	1979:IV	1978:II
Personal income (in millions)	$113,682	$110,286	$106,920	$103,397	$101,587

Sources available upon request. [a] preliminary. n.a. not available.

Employment By Type and Major Industrial Sources, Illinois SMSAs and Counties, 1978

	Total employment	Number of proprietors	Wage and salary employment									
			Total	Farm	Nonfarm							
					Total	Govt.	Private nonfarm					
							Total	Mfg.	Trans.	Trade	Services	Other#
United States	102435000	9347000	93088000	1293000	91795000	18094000	73701000	20581000	4912000	19651000	18130000	10427000
Illinois	5381228	425237	4955991	35500	4920491	788088	4132403	1292688	283095	1097947	936933	521740
SMASs												
Bloomington-Normal	56556	6481	50075	1018	49057	8016	41041	7403	2987	11438	9252	9961
Champaign-Urbana-Rantoul	82265	7066	75199	694	74505	30308	44197	7355	2604	17036	12193	5009
Chicago	3503205	166763	3336442	6075	3330367	461833	2868534	870146	197936	769519	669741	361192
Davenport-Rock Is-Moline	188503	15383	173120	1063	172057	30160	141897	48384	8027	40170	29504	15812
Decatur	64426	5088	59338	395	58943	5507	53436	20751	4808	11604	10613	5660
Kankakee	45155	4054	41101	759	40342	10119	30223	10389	1447	8038	7431	2918
Peoria	181884	13836	168048	1149	166899	22103	144796	54962	7431	36682	29657	16064
Rockford	138416	9046	129370	560	128810	13691	115119	56010	5646	24907	19970	8586
Springfield	1138994	68266	1070728	2757	1067971	166212	901759	261836	70028	232522	231132	106241
St. Louis	100549	9035	91514	1049	90465	26229	64236	8024	5355	19420	19688	11749
COUNTIES												
Adams	34690	4736	29954	375	29579	3516	26063	8700	1448	7535	6214	1878
Alexander	4553	754	3799	98	3701	747	2954	1048	363	833	546	160
Bond	5207	1594	3613	151	3462	581	2881	525	145	840	1188	174
Boone	14340	1456	12884	271	12613	1295	11318	7691	546	877	1151	746
Brown	2217	993	1224	109	1115	362	753	25	0	275	0	89
Bureau	15173	3695	11478	489	10989	2120	8869	3442	440	2123	1763	1101
Calhoun	1993	1005	988	120	868	323	545	0	19	243	198	76
Carroll	7173	2129	5044	254	4790	1521	3269	731	611	718	0	335
Cass	5597	1270	4327	202	4125	804	3321	1293	0	649	0	143
Champaign	82265	7066	75199	694	74505	30308	44197	7355	2604	17036	12193	5009
Christian	13609	2770	10839	724	10115	1774	8341	1545	0	2424	0	1982
Clark	6637	2076	4561	243	4318	938	3380	820	274	1061	607	610
Clay	5497	1755	3742	73	3669	867	2802	661	227	887	444	583
Clinton	10278	2336	7942	236	7706	2359	5347	914	421	1196	1573	772
Coles	23120	2902	20218	288	19930	3846	16084	6220	1488	4188	2468	1608
Cook	2796044	115576	2680468	1276	2679192	344887	2334305	699725	170005	617373	550105	297097
Crawford	9370	1817	7553	135	7418	1071	6347	3042	349	1375	736	845
Cumberland	3558	1499	2059	101	1958	552	1406	473	0	426	340	96
De Kalb	30883	3523	27360	818	26542	7125	19417	8053	798	5621	3195	1552
De Witt	6742	1575	5167	186	4981	936	4045	1130	587	1400	0	200
Douglas	8688	1711	6977	303	6674	835	5839	1711	530	1437	876	1285
Du Page	243912	17296	226616	943	225673	26926	198747	43682	10838	64869	51656	26627
Edgar	9086	2405	6681	417	6264	1079	5185	2133	0	1345	943	460
Edwards	3570	1001	2569	108	2461	274	2187	1273	93	216	226	104
Effingham	15777	2814	12963	193	12770	1545	11225	4082	873	3216	2065	989

Employment By Type and Major Industrial Sources, Illinois SMSAs and Counties, 1978 (continued)

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			Total	Farm	Nonfarm							
					Total	Govt.	Private nonfarm					
							Total	Mfg.	Trans.	Trade	Services	Other#
Fayette	8656	2698	5958	265	5693	1599	4094	1201	255	1444	709	476
Ford	6975	1794	5181	345	4836	846	3990	1244	224	1190	840	456
Franklin	12410	2584	9826	110	9716	2171	7545	663	330	1766	1678	3108
Fulton	14133	3357	10776	353	10423	2384	8039	1821	477	1805	2335	1312
Gallatin	2817	767	2050	164	1886	393	1493	190	18	364	187	730
Greene	5459	2001	3458	389	3069	775	2294	339	298	839	589	229
Grundy	12988	1704	11284	161	11123	1667	9456	2946	0	2853	1091	957
Hamilton	3119	1344	1775	120	1655	671	984	130	0	329	141	306
Hancock	8316	3105	5211	299	4912	1321	3591	616	290	942	1248	486
Hardin	1435	401	1034	13	1021	263	758	0	79	114	229	327
Henderson	2283	991	1292	254	1038	466	572	19	50	262	129	103
Henry	19967	4558	15409	513	14896	2752	12144	2964	0	4289	2160	1896
Iroquois	13538	4044	9494	773	8721	1646	7075	2566	290	2187	1413	619
Jackson	27125	2634	24491	314	24177	10316	13861	2003	1199	5007	3479	2173
Jasper	5333	1797	3536	133	3403	523	2880	694	255	613	244	1068
Jefferson	15221	2921	12300	138	12162	2065	10097	1090	686	2760	2830	2731
Jersey	5720	1420	4300	247	4053	1109	2944	299	190	883	1346	220
Jo Daviess	8107	2479	5628	258	5370	1090	4280	1886	191	1089	672	442
Johnson	2412	997	1415	86	1329	476	853	127	0	332	173	82
Kane	128735	8254	120481	1057	119424	18779	100645	38285	3865	26795	21211	9863
Kankakee	45155	4054	41101	759	40342	10119	30223	10389	1447	8038	7431	2918
Kendall	16158	1583	14575	335	14240	1273	12967	9608	219	1328	1233	487
Knox	30855	3606	27249	491	26758	4713	22045	8467	1814	5261	4530	1973
Lake	190019	12280	177739	1074	176665	49840	126825	47465	4792	34910	26839	11029
La Salle	50938	7240	43698	724	42974	5537	37437	15154	2293	9855	6818	3317
Lawrence	6589	1277	5312	160	5152	887	4265	1046	183	805	1048	834
Lee	16898	2876	14022	259	13763	4944	8819	3179	711	1682	1912	760
Livingston	17095	3987	13108	525	12583	3405	9178	2888	466	2334	2134	1356
Logan	15949	2492	13457	458	12999	3968	9031	2629	522	2429	2685	759
McDonough	15216	2887	12329	317	12012	3643	8369	2491	411	3239	1417	760
McHenry	50537	5934	44603	1215	43388	6033	37355	17965	1162	8164	5478	4586
McLean	56556	6481	50075	1018	49057	8016	41041	7403	2987	11438	9252	9961
Macon	64426	5088	59338	395	58943	5507	53436	20751	4808	11604	10613	5660
Macoupin	15680	4144	11536	476	11060	2421	8639	1174	593	2680	1918	2274
Madison	97609	8063	89546	505	89041	14983	74058	30129	5286	15765	14956	7922
Marion	18330	3299	15031	138	14893	2369	12524	3950	1378	3168	2510	1518
Marshall	4692	1370	3322	169	3153	680	2473	798	138	761	436	278
Mason	6535	1728	4807	382	4425	1018	3407	943	263	1289	422	490
Massac	5019	1145	3874	64	3810	897	2913	1022	549	581	495	260
Menard	3681	1171	2510	273	2237	671	1566	243	172	394	316	111

Employment By Type and Major Industrial Sources, Illinois SMSAs and Counties, 1978 (continued)

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			Total	Farm	Nonfarm							
					Total	Govt.	Private nonfarm					
							Total	Mfg.	Trans.	Trade	Services	Other#
Mercer	5424	2092	3332	361	2971	1284	1687	164	197	713	342	268
Monroe	4972	1591	3381	299	3082	813	2269	98	130	674	502	565
Montgomery	12425	3178	9247	244	9003	1493	7510	1769	681	2001	1654	1405
Morgan	19844	2644	17200	409	16791	4368	12423	3491	1023	3089	3478	1337
Moultrie	4723	1442	3281	184	3097	585	2512	453	139	791	774	355
Ogle	18416	3451	14965	837	14128	2436	11692	6382	370	2744	1334	862
Peoria	114074	7373	106701	274	106427	15005	91422	26176	4763	25958	23486	11039
Perry	8553	1666	6887	119	6768	1076	5692	1886	199	916	1004	1679
Piatt	6034	1568	4466	345	4121	945	3176	694	275	849	1013	345
Pike	7630	2758	4872	640	4232	1021	3211	570	252	1030	800	559
Pope	1193	544	649	75	574	357	217	0	0	50	0	50
Pulaski	2827	701	2126	73	2053	589	1464	170	110	218	900	62
Putnam	2468	545	1923	133	1790	297	1493	972	132	202	99	48
Randolph	14945	2813	12132	223	11909	2600	9309	3946	866	1678	1289	1530
Richland	8387	1620	6767	87	6680	1449	5231	1921	451	1211	954	694
Rock Island	92235	5261	86974	213	86761	19459	67302	27252	4270	17009	12477	6061
Saint Clair	95811	7555	88256	316	87940	25614	62326	11494	6438	17089	17961	9344
Saline	9392	1788	7604	69	7535	2089	5446	226	485	1670	1655	1410
Sangamon	96868	7864	89004	776	88228	25558	62670	7781	5183	14056	19372	7347
Schuyler	3149	1328	1821	189	1632	551	1081	99	40	444	304	194
Scott	2322	775	1547	138	1409	401	1008	91	116	293	114	394
Shelby	7213	2885	4328	235	4093	1274	2819	577	224	931	698	382
Stark	2670	974	1696	176	1520	340	1180	305	84	392	266	124
Stephenson	25503	3458	22045	437	21608	3237	18371	8738	568	3265	2667	3133
Tazewell	58256	3940	54316	300	54016	5722	48294	27594	2384	7355	4728	4458
Union	7774	1502	6272	253	6019	3002	3017	1351	204	566	628	263
Vermilion	44934	4756	40178	649	39529	6323	33206	13169	2304	7162	7134	3417
Wabash	7004	1073	5931	87	5844	783	5061	1802	210	796	816	1430
Warren	8730	2183	6547	404	6143	1224	4919	1030	294	1808	1400	355
Washington	5253	2008	3245	226	3019	888	2131	358	153	757	518	345
Wayne	7637	2521	5116	185	4931	1010	3921	1093	239	1196	641	752
White	6808	1921	4887	174	4713	1175	3538	455	300	1143	710	930
Whiteside	27949	3104	24845	409	24436	3793	20643	11007	668	4666	3008	1294
Will	93958	7423	86535	510	86025	15368	70657	23024	7274	17408	14452	8499
Williamson	19552	2510	17042	51	16991	3360	13631	3952	1198	3632	2071	2778
Winnebago	124076	7590	116486	289	116197	12396	103801	48319	5100	18261	18819	7455
Woodford	9554	2523	7031	575	6456	1376	5080	1192	284	1258	1443	468

#Includes mining, construction, finance-insurance-real estate, and other industries.
ONot shown to avoid disclosure of confidential information. Data included in totals.
Source: US Department of Commerce, Bureau of Economic Analysis.

EXPORT OR BURN? American Grain and the Energy Equations

FOLKE DOVRING

Americans have long looked to exports of feed grains, wheat, and soybeans as an important source of revenue to pay for our imports including petroleum, which is the main reason for our foreign exchange deficit. Recent sharp rises in international oil prices should make us ask whether grain export for oil import still makes economic sense. Instead of exporting the grain we might make fuel alcohol from it, and this could give us more fuel than the oil imported for the grain export income. If conversion of crops to fuel were to take on large scope, this might profoundly alter our international economic relations, both trade and aid.

The Grain-Fuel Ratios

There are two sets of ratios to discuss. One is the ratio of imported oil to the amount of alcohol fuel we could make from the grain we export, at the prices at which the goods are traded. The other is the ratio of the energy used to produce grain to the energy that can be imported for the proceeds of the exported grain, or be obtained by making alcohol fuel from the grain.

The first of these sets of ratios is relatively simple, and the reasoning will center around relative prices and opportunity costs. The second set is more difficult to compute and requires marginal analysis.

Alcohol Versus Oil

From cereal grains we may obtain ethyl alcohol, a high-grade fuel which can substitute, blended or alone, for petroleum fuels (gasoline and diesel fuel). From a bushel of corn, distillers obtain up to 2.6 gallons of pure alcohol. High-protein distillery residues are used as stockfeed or as raw material for human food. The residue weighs about 30 percent of the grain. A whole bushel of corn starch yields about 3.7 gallons of alcohol, and this ratio is meaningful for the following discussion.

Assume, for instance, that most of US feed grain exports in recent years, some 2 billion bushels a year, had been used for alcohol production instead of being exported, and that another 850 million bushels had been diverted from domestic feed use to alcohol production. The 2.9 billion bushels of feed grain would have supplied 7.4 billion gallons of alcohol and about 850 million bushels of distillery residue. In net terms, the 7.4 billion gallons of alcohol would have been obtained by forgoing the export of 2 billion bushels of grain.

Producing alcohol from grain also consumes fuel, as will be discussed later. For the moment let us assume that the grain is being produced in any event.

A barrel of crude oil contains 42 gallons. To become usable it must be refined and that takes energy, much of it from high-grade sources. Refinery output also includes some nonfuel products and some fuels of lower value. Depending on the choice of accounting convention, the amount of high-grade fuels obtained (net) from a barrel of crude oil is in the range of 29–35 gallons.

Ethyl alcohol contains fewer heat units per gallon than petroleum fuels. Because of octane effect and other special circumstances, the work done by a gallon of alcohol is sometimes as high as that of gasoline and sometimes less. Alcohol from a bushel of grain starch replaces about 1/10 barrel of crude oil.

It follows that the export price of a bushel of corn ought to exceed 1/10 of the import price of a barrel of crude oil, if oil import paid for by grain export is to be more advantageous to the nation than alcohol production. Table 1 shows selected proportions between grain price and oil price.

The break-even value (3.5 gallons of refinery feedstock per bushel of corn) is obviously not satisfactory. There have to be some gains in trade, else the transactions would not be worth their cost and uncertainties.

The OPEC price level of a year ago (about $20 a barrel) gave us a little more motor fuel for 10 bushels of corn than we could distill from the same grain. In the current price range, $26 is close to a fuel deficit, and the higher price levels ($30 to $35, up to $40 on the spot markets) give us less fuel for grain export than from grain alcohol.

The reasoning for corn holds, with some variation, also for grain sorghum. For wheat and soybeans, current prices may appear more favorable, but this is so in appearance only. Nor is it relevant that soybeans are not a suitable feedstock for alcohol production. Relevant instead is the opportunity cost of using land for growing wheat and soybeans. Feed grains produce higher physical yields (on the same kind of land) than wheat and soybeans, more or less in inverse proportion to the price ratios of feed grains to wheat and soybeans. Hence the

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break-even prices for wheat and soybeans, relative to petroleum, should be proportionately higher than feed grains, and current price ratios are about as unsatisfactory for all the grains.

It is a different matter that a long-range alcohol program might prefer other crops (silage crops or sugar crops) and tree plantings, which can bring higher fuel yields per acre than grains. But this only underscores the conclusion because it would further raise the level of grain prices (relative to oil prices) at which grain export makes economic sense for the nation.

At current oil prices, feed grains for export should fetch $3.50 to $4 per bushel, and other grains in proportion (wheat $6, soybeans $9). If grain prices are not raised, crude oil of average quality should not go higher than $20 a barrel.

Only the absence of large distillery capacity prevents the US from pursuing a price policy corresponding to the foregoing observations. In about two years this might change substantially, depending on what investment decisions are taken now.

Table 1. Alcohol Versus Oil: Energy/Price Ratios for Refined Fuel

then a bushel of corn will buy this many gallons of refinery feedstock when corn sells for ($/bushel)	When a barrel of crude oil yielding 35 gallons of refinery fuel sells for ($/barrel),				
	20	25	30	35	40
2.00	3.50	2.80	2.33	2.00	1.75
2.50	4.38	3.50	2.92	2.50	2.19
3.00	5.25	4.20	3.50	3.00	2.63
3.50	6.13	4.90	4.08	3.50	3.06
4.00	7.00	5.60	4.65	4.00	3.50

Table 2. Grain Versus Oil: Energy/Price Ratios for Crude Oil

then a bushel of grain will buy this many gallons, when crop sells for ($/bushel).	When a barrel of crude oil, at 42 gallons/barrel, sells for ($/barrel),				
	20	25	30	35	40
2.00	4.20	3.36	2.80	2.40	2.10
2.50	5.25	4.20	3.50	3.00	2.63
3.00	6.30	5.04	4.20	3.60	3.15
3.50	7.35	5.88	4.90	4.20	3.68
4.00	8.40	6.72	5.60	4.80	4.20
5.00	10.50	8.40	7.00	6.00	5.25
6.00	12.60	10.08	8.40	7.20	6.30
7.00	14.70	11.76	9.80	8.40	7.35

Input Energy Versus Alcohol

The foregoing does not mean that alcohol fuel from crops is always an acceptable use of resources. Energy input into crop production may be so large that grain production for alcohol fuel means a net loss of high-grade fuels. Energy used in distilleries is a separate matter. That may be obtained from low-grade fuels such as coal, wood, or crop residue. But the energy used (directly and indirectly) in farming is mainly high-grade fuels (oil and gas) and must be accounted for. Output of fuel must be much higher than the input of high-grade fuels to justify other costs.

Energy intensity of crop production must be analyzed for marginal as well as average costs of production, because it must be assumed that the US farming industry is primarily intended to supply the domestic population with food. Quantities exported or processed into fuel should be regarded as additional. The cost to the national household of carrying on the export and/or fuel enterprises should carry marginal rather than average costs, extending to marginal quantities within that part of production intended for export or fuel. Whatever marginal production does not pay its way, in export or for fuel production, should eventually be discontinued. International oil prices have not yet worked their way through the entire energy complex of the US. Price controls on domestically produced fuels have contributed to understating marginal costs of production.

As already shown, an additional bushel of grain intended for alcohol production has a potential fuel value of 3.7 gallons, or the equivalent of about 1/10 of a barrel of crude oil. Comprehensive energy analysis points to a break-even value of about 4 gallons of input energy. Such a level of total (direct plus indirect) energy input is no more acceptable in distilleries than in foreign trade. Reprocessing of the same or equivalent material brings uncertainties and unconventional costs which may be hidden behind tax relief and other subsidies.

Therefore, input energy per bushel should not exceed the crude-oil equivalent of 3 gallons. A one-third addition to the input energy appears as a modest rate of return to the nonenergy costs of the process.

Energy analysis of grain production cannot yet be made entirely complete or very accurate. This is, however, not as important for marginal as for average cost calculations. We already have acceptable data for the main elements of variable costs, namely fertilizers, machine operation, and irrigation where applicable.

Data for the following have been drawn mainly from the *Firm Enterprise Data System* (FEDS), a loose-leaf annual publication with crop budgets separately for several crop enterprises within each state and usually for each of several production areas within each state.

Average energy cost of producing grain in the US usually comes in the range of 100 to 200 thousand Btus per bushel of grain. A gallon of crude oil contains about 138 thousand Btus, a gallon of diesel fuel nearly the same (138,200). A gallon per bushel is a frequent magnitude which may be used as a rule-of-thumb.

Marginal analysis of grain production can be pursued on three principal type situations: irrigated lands, rainfed lands with high fertilizer application, and rainfed lands with low yields per acre.

Irrigated Grain Lands

The FEDS budgets frequently give separate data for irrigated and unirrigated lands under the same crop within the same production area. The marginal energy cost of grain from irrigation can be computed by subtracting the costs and the output of nonirrigated lands from those of the irrigated lands.

About one-tenth of all grain production in the US comes from irrigated land. The 1974 Census of Agriculture shows over 11 million acres in corn, sorghum, and wheat under irrigation, producing close to 900 million bushels of these three grains. The FEDS data for recent years show even larger acreages for some of the irrigation states.

Not all irrigated grain farming has high energy costs. The Southwest generally has; nine states (Arizona, California, Colorado, Kansas, Nevada, New Mexico, Oklahoma, Texas and Utah) have more than half of the irrigated grain lands and production, and here the irrigation costs are often high.

Some areas have only irrigated grain lands. Arizona has several hundred thousand acres in wheat, sorghum, and barley, yielding about 60–75 bushels per acre. With about 2,000 kwh of electricity for irrigation pumping per acre and high fertilizer inputs, energy input (direct and indirect) varies from 3½ to almost 5 gallons (equivalent) per bushel, which is clearly out of bounds for conversion to fuel.

Other areas are less extreme in their average energy input per bushel of grain under irrigation, but their marginal cost for grain that is additional through irrigation are higher. In Texas, for instance, there are areas in which irrigated wheat and grain sorghum have average energy requirements in the range of 2 to 2½ gallons (equivalent) per bushel, but the marginal requirement rises to the range of 3½ to 4 gallons. In some cases inferences may be made from other crops. Western Texas (area 100) has only irrigated corn, occupying about a million acres. Average energy requirements come in the range of 1¾ to 2½ gallons (equivalent) per bushel. Comparison with nonirrigated sorghum indicates the marginal energy cost per bushel of corn additional through irrigation is above 3 gallons.

A tentative estimate of the volume of cereal grains produced under energy-expensive irrigation comes to 300 million bushels (corn, sorghum, wheat).

High-Yielding Rainfed Lands

High application of nitrogen fertilizers often shows diminishing marginal returns. Sometimes this can be shown from macro data. In Illinois, use of nitrogen fertilizers increased from around 600 thousand short tons in the early 1970s to nearly 900 thousand tons in the late 1970s; almost all of the increase went to corn for grain. Up to 1971, nitrogen used for corn was close to 1 pound per bushel which is not excessive, since the uptake of nitrogen in corn is close to .8 pound per bushel. From 1971 to 1978, an increase of 274,000 short tons (548 million pounds) of nitrogen was accompanied by an increase in corn production of about 250 million bushels, thus about 2 pounds per bushel — clearly increasing but not yet excessive in the average. Nitrogen fertilizer production takes from 33,000 Btu per pound of ammonia to 49,000 for solid urea. The average for all nitrogen fertilizers is about 38,000 Btu per pound of nitrogen.

Returns to alternative levels of fertilizer application are known only in broad features. It is clear that high nitrogen applications may produce very small marginal yields. The point has been made many times. Analysis of yield response data for Illinois for 1971 led to the conclusion that limiting nitrogen application to 100 pounds per acre would reduce the yield of corn by only 4 or 5 bushels per acre, about 5 percent. The result may be overstated because of variations not included in the material such as new varieties and higher plant densities per acre. The higher average level of application in recent years may offset some such factors.

No matter what the time trend is and the reasons for it, in each season there is some overapplication of nitrogen fertilizers relative to whatever production technology is used. Higher prices of fertilizers, corresponding to OPEC oil prices, would no doubt reduce farmers' willingness to apply nitrogen at current levels. A 3-percent reduction in the production of corn and grain sorghum appears as a modest estimate of such response to fertilizer prices, and that would bring down total supply of feed grains by a magnitude of 200 million bushels.

Low-Yielding Rainfed Lands

Here too we should expect some lands which are marginal for grain production. The FEDS data do not directly reveal energy costs in excess of 3 gallons (equivalent) per bushel for any area-crop budget (except in years of crop failure, in some areas) but that is not to be expected. Over 2 gallons (equivalent) per bushel is shown as average here and there, and then some of the lands entering such averages are likely to be over 3 gallons per bushel. Areas with recurrent crop failures should of course be judged on the basis of averages over suitable time periods.

Such indications confirm the intuitive conclusion that there are submarginal lands in production. No figure can be estimated ever so tentatively at this stage, but the point underscores that the sum of the two previous estimates, of about 500 million bushels of cereal grains being produced beyond the energy margins in the US, is on the low side.

Energy Input Versus Imported Oil

High input of energy into grain for export can be justified on condition that the proportion of grain export price and oil import price is such as to produce a substantial positive balance of energy import.

Comparison is now with crude oil (at 42 gallons per barrel) rather than with refinery output. This is because the energy analysis of grain production includes indirect energy uses (through the various "backward linkages" of each activity — the inputs received from other industries,

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both energy producers and producers of other input goods and services).

Table 2 shows the grain price/crude oil price proportions for a number of selected levels of price of grain and oil.

The problem discussed in connection with alcohol from energy-marginal grain is complicated in relation to exports because of the several levels of energy-into-grain found in various grain-producing areas, and also because of the prices of the various grains.

Acceptable price combinations would be those shown on the diagonal of the table — 4.2 gallons per bushel, implying a 40 percent gain over 3 gallons as the maximum acceptable level of input energy for grain alcohol. (The gain is smaller in fuel terms, when the nonfuel parts of the crude oil are removed.) In the absence of competition with an alcohol industry, the lowest break-even price for grain is now lower. This is the set of price ratios below which all 500 (plus) million bushels of energy-marginal grain should be rejected also for export. But some should be rejected even at higher price ratios, because their marginal energy cost is higher than 3 gallons per bushel, a distinction not needed in relation to alcohol production. Many wheat areas have marginal energy cost considerably higher than 3 gallons (equivalent) per bushel, and then the higher price of wheat would not always be sufficient to justify such production on the grounds that the export proceeds would help to pay for oil imports.

To Feed the World . . .

Food as foreign aid has been attractive in the past, when both commercial exports and foreign aid shipments were advantageous to the US and its farming industry. With low energy prices, marginal costs of production were almost always low and the largest volume of output therefore appeared as the most profitable.

Recent quantum jumps in oil prices now make the proposition two-faced. Between commercial exports and aid shipments we were able in the past to differentiate commercial and concessional terms. It is hard to visualize any similar distinction as regards energy use in agricultural production, or fuel use of agricultural products.

. . . Or Mind Our Own Business?

Nearly half of all cereal grains in international trade comes from the US. The country's share is too large for comfort and still, it appears, not large enough for decisive leverage on world markets — not as long as we depend upon the buyers about as much as they depend upon us. The "bushel for a barrel" approach to grain and oil prices is at best viewed cautiously as requiring an export cartel including several other countries.

And yet, some link between the prices of food and those of fuel has to be found. The current OPEC price levels are out of step with the realities of food farming and the potentials of biomass fuel production. The problem has so far been obscured by price controls in this country on domestic sources of energy, which have rendered profitable to farmers some lines of energy-marginal production which are not profitable to the national economy. By exporting energy-marginal grain we are now, in some sense, subsidizing the world's food. Implicitly we do even more of the same by not converting more of our grain into fuel.

Where would this leave the poor countries — those with a need for food aid? The device of the 1950s and 1960s, of dual pricing (concessional terms for food aid) does not apply. Subsidized food going to the poorest countries will then, in a marginal sense, subsidize the oil-exporting countries because maintaining food production at the highest level possible will maximize our demand for oil which means more of the high-priced oil.

Unless some rational proportion between the prices of grain and oil is found, this country might recede into a posture of increasing self-sufficiency and reduced interdependence with the rest of the world. The point should interest not only OPEC countries but also other countries with large exports of oil and large import demand for food, such as Mexico and the Soviet Union.

1978 Income and Employment Data Available

Detailed BEA income and employment data are available for each of the 102 counties and 10 SMSAs of Illinois for 1971–1978. To obtain the data, write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois 61801. A charge of $30 will be made to cover costs.

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The Worst Prospect in 50 Years

V LEWIS BASSIE

The economy is generally viewed in terms of trends: growth is thought to be the normal state of affairs, with minor interruptions as exceptions; government is big and getting bigger; inflation is high and getting worse. Nobody wants to believe that we live in an inherently unstable economy. On the theoretical side this leads to misunderstanding of the boom, on the policy side to mistakes of diagnosis and prescription.

Now the Carter Administration has lined up monetary and fiscal policy to break the boom — euphemistically called "solving our number one problem, inflation." Monetarist and conservative philosophizing on high interest rates and budget balancing has convinced them that recession is the way to go. Actually, nobody knows how ruinous the consequences may be when the boom breaks.

To view downturns as mere incidents is to miss their significance as an outgrowth of what went before. Furthermore, the fact that the preceding upsurge itself reflected cyclical components and was not all dependable growth is passed over. Since the end of World War II, there have been only minor recessions, giving rise to the belief that that is the only kind possible. This is a state of mind similar to that reached in 1929. Today the expected recession is not feared by economists and officials who are content to "look across the valley."

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The Double Carousel

In contrast, a way to understand the present position is to think in terms of two basic business cycles: the real cycle in production, investment, real income and consumption, and in the stocks of goods and facilities that are created by and used up in those processes; and the credit cycle which builds or runs off stocks of money and money substitutes by expansion and liquidation of debt. Both cycles are governed by similar stock-flow relationships and the link between them is the price system. The flows are amplified by the Keynesian multiplier, and the stocks govern the turning points.

The interplay of these cycles carries the economy to extremes that cannot be sustained: When one accelerates, it pulls the other along, and when the other in turn speeds up, it puts new life into the first. In the boom, as inflation is stimulated, there is increased willingness to hold stocks and to incur debt for this purpose, and high activity seems for a while to justify both, but only to the point of the downturn, when the excesses are revealed. In the trough, the liquidation of stocks also overcarries. These cycles may be represented by circular flow diagrams and the combination of the two I call the double carousel.

Business cycles are, of course, modified by extraneous events. Between the two world wars, business movements were practically uncontrolled and undisturbed. With prices stable or drifting downward, the real cycle was dominant, and in the 1920s it led to the saturation of all the investment markets. This primary cyclical pattern, a pattern of great regularity, was modified only by minor dips and recoveries in particular components, especially business inventories. The period following World War II was quite different, for both domestic and international reasons, so that no undisturbed cyclical pattern could de-

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velop. Prosperity was supported and prolonged — by a succession of government interventions in recessions; by international disturbances that stimulated new bursts of activity; and by economic growth all around the globe, with the freeing of international trade and investment. This prosperity now seems to be reaching its end. New minor "crises" generate spurts of speculation but hardly any boost for real investment, while real consumption is being depressed by inflation and protectionism is reviving almost everywhere.

At the peak of the boom, redundancy in stocks of all kinds tends to develop, and after the downturn, the excesses have to be liquidated. The way to reduce surplus real stocks is to cut back production and wait until consumption and disinvestment bring them down; but since these stocks are mostly very durable, it is a slow process, with unemployment remaining high (witness unemployment of over one-sixth of the labor force in 1939, after the 1929 peak had again been recovered). The way to reduce surplus money stocks is, in the first instance, to buy other assets, which drives up prices and depreciates money's value, and later to pay off or write off debt, and since writing off is speedier, it tends to dominate a major decline through spreading defaults and bankruptcies (again look at the 1930s). There is nothing in the powers of the government to reverse a concerted movement of this kind, even if any government were willing to accept the inflationary consequences of trying.

Bringing this boom to an end did not require the strong deflationary action that has recently been taken. Various indicators were already signaling a reversal — the squeeze on labor's real earnings, the tapering off of the rise in instalment credit, the 10 percent decline in housing starts, the shift of the high-employment federal budget from deficit to surplus, the leveling off of industrial production, and the instability of sensitive commodity prices. The impact of the new policy was merely to hasten the downturn and ensure that the decline will be more than minor. Once put in reverse, the cycles will work as hard on the downside as they did earlier on the rise. This not only means the decline will be deep, it will also be prolonged.

The Propagation of Error

There is a widespread misconception which holds that real investment has been deficient in recent years. Actually, it was above 10 percent of real GNP (gross national product) in 1978–79. This is fully up to par for our economy, a full percentage point above the average for the peacetime years, 1955–64, though low for other countries. In manufacturing, investment has been adequate to keep capacity moving up steadily, and with production failing to grow in the last 12 months, it has depressed the rate of utilization to the point that new investment commitments must fall.

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Despite the contrary evidence, this misconception has been used to promote a secondary fallacy, namely, that taxes should be cut, especially on capital gains, to increase savings. But increased saving is just the wrong prescription in conditions of stagflation. The effect of increased saving in the real cycle is to halt the growth of output and investment at some point conceived as an equilibrium. Its effect in the credit cycle is to pile more onto the surplus of money and spur the bidding up of prices, first in financial markets and then throughout the economy. Clearly, the main result is to enrich the affluent few at the expense of aggravating both the stagnation and the inflation.

At a still further remove, there is a tertiary error, which states that expanded saving will renew growth in productivity. This amounts to moving to a higher order of improbability in the concept of trickle-down improvement. What is really needed to improve investment for higher productivity is an upsurge in demand and output, but given the cyclical position and the damage added by misguided policy, this is a prospect in the realm of fantasy. However, productivity does tend to recover in recessions, as management cuts back the excess employment taken on in the boom.

It is unfortunate that error should be the source of policy. However, in the confusion bred by instability, diagnoses that provide a "cure" desired by prominent people can be made to sound plausible and may be promoted by mass media looking for something interesting to say.

Exacerbating Trends

There are two little-noted long-term trends — institutional changes if you prefer — that are important in this picture. The first is the solidification of control over prices by industry; since the end of World War II business has striven to effectuate administered pricing practices which will minimize price competition. The second is the growth of the propensity to speculate with borrowed funds; this has spread from the financial community to the population at large, whose awareness of profit opportunities in speculative ventures is increasingly acute. These trends exacerbate the cyclical swings; they have contributed much to the inflation; they will also worsen the situation on the decline.

The private price controls have grown greatly in potency. In the 1930s it was observed that the fixity of prices in key industries put the entire burden of the decline on production and employment. Now the practices variously described as conscious parallelism or tacit collusion prevail in many more industries. They have been spread and tightened by conglomerate mergers and multinational extensions. The growing concentration of control has made the decline in price competition so pervasive that it is hardly appropriate to speak of free market forces. Many industries can now put prices up and keep them up through recessions. That the most efficient corporations may remain profitable is not necessarily helpful; even today the most affluent, like big oil, cannot find outlets for investment of the surpluses they are accumulating. The more profits derive from raising prices rather than production, the more will consumption be doubly depressed.

Two other aspects of this pricing trend may be noted. First, the private price controls provide opportunities for offsetting government attempts to cushion declines. In earlier articles, I showed how government deficits in recessions have been increasingly absorbed into corporate surpluses (IBR, Dec. 1975 and Feb. 1976). Thus, the government sector is weakened and the corporate sector strengthened at its expense.

Second, and more disturbing, the result is a generalization of the transit syndrome. This disease of the local transit system begins with a decline in revenues, which is met by raising controlled prices, so more passengers are driven away, service is curtailed, traffic again falls, and through successive stages, the decline in the enterprise often ends fatally. Slumpflation is partly the mark of a similarly sick economy.

Heyday of the Lender

Money is created in credit transactions, not primarily in government but in the private economy. During the boom, the expansion of credit soared. In both 1978 and 1979, the total raised in US credit markets was nearly $500 billion, with four-fifths going to nonfinancial sectors. At this $400 billion annual rate, the increase in debt for nonfinancial borrowers was more than twice the increase in GNP. It was close to three times the excess of gross investment over capital consumption allowances. The country has been floundering in a flood of credit.

Economists have long called for restraining the growth of the money stock, but instead it has accelerated. They spoke as if the Fed had the necessary powers, but it could not even keep many banks under its jurisdiction. New legislation, after the damage was done, has been enacted. Earlier for several years the regulatory agencies — not just the Fed but the comptroller and the deposit insurers — have been serving the special interests of the financial institutions under their jurisdiction, trying to keep each group of institutions profitably healthy and free of competitive disadvantages.

The door was thus opened to an array of new forms of money, accelerating the expansion of the total stock. Checks or similar orders can now be written against various kinds of savings and time deposits, even money market mutual funds, and credit cards may be more acceptable than cash; standby credit and automatic transfers prevent overdrafts; repurchase agreements give fast access to cash, as do certificates also, though with some penalties. The confusion is such that nobody knows just what money is nowadays, and past relationships are obsolete. The regulators have created opportunities and benefits for lenders, but not for the people generally.

As for interest rates, they too are instruments for transferring wealth to the wealthy, the group with ample funds to lend. Competition is still important in determining rates, because funds must be kept in earning assets, but the rates are not without monopolistic elements. These come to a focus in the prime rate, a leadership phenomenon with which all banks keep up; published daily, it tells them what to charge, while maintaining their own margins over the prime for particular types of loans. In the instability of the 1970s the prime took the lead on the advance; then it was held high, lagging on the declines. Demand for credit stays high in the early stages of recession, as business temporarily has increased need for liquidity, and fear of risks restrains lending. In the last few months, rates pushed to new, extremely high peaks, in part because the authorities gave the word of approval and freed the banks from any official reaction, any jawboning even, from a government beguiled by claims of fighting inflation.

The banks take advantage of this official collaboration despite being among the chief builders of inflation. What they are selling is credit and the more credit they sell, the greater is the spur to inflation. So high interest rates are a great advantage in having their own prices and incomes used by the authorities as a way of restraining the inflation of others' prices and incomes. But banks do not want restriction of their own volume of business, and their strong influence with the authorities results in giving them high rates without real tightening of money. With a few incidental exceptions, high interest rate policy is the only kind of tight money policy we have ever had in this country.

Adding speculation to this picture aggravates the instability. New games for the speculator have appeared and expanded. Through futures, options, and other devices, anyone can gamble on stocks, on commodities, on real estate, on collector's items, on foreign exchange and interest rates, on the other games specifically called gambling. During the boom, this had lifted debt without real merit to new peaks and created loose funds for pushing up prices. Inflation and interest rates build on each other and also build demands for credit, which then overbuilds the boom and magnifies the volume of shaky debt that will have to be liquidated after the downturn. Never has debt been so greatly blown up, possibly never again will its liquidation be more depressing.

The Politics of Instability

The idea that government is responsible for inflation has come to be accepted even in Washington. At best it is only partly true, and not in the ways it is said to be. The trouble is not with the budget or the bureaucracy, as doctrinaire opponents of government assert, it is with the politicians, the Administration and the Congress. The two cycles that have blown up the boom are primarily phenomena of the private economy, but government has contributed because the politicians are eager to curry favor and become partners with the owners of wealth. There are a number of exceptions, of course, who work conscientiously for the public good, but the dominant group needed to put legislation through acts with all possible delay, timidity, misdirection, and subservience to private power.

The complaints against the federal budget are not well founded. Inflation is not primarily the result of government spending or deficits. Expenditures were pushed up in 1975 by the recession, but they have been rising more slowly than GNP since. Direct claims on resources through government purchases of goods and services have risen only about half as fast. During the last two years, the impact of the budget has been negative: from a large high-employment deficit, it has swung over to a substantial high-employment surplus, for a total deflationary swing of almost $50 billion.

Nor has government borrowing been the villain it is said to be. There is no reason to think that government use of credit is more inflationary than private use of credit, and except in 1975 and 1976, the government has not taken more than a sixth of the funds raised in US credit markets by nonfinancial borrowers. As inflation got worse, the federal share of the increments of debt fell from 25.4 percent in 1976 to 13.4 percent in 1978 and to less than 10 percent in 1979.

If government has erred on the side of inflation, it was in providing too much stimulus earlier. Instead of letting the rise in revenues eliminate the deficits, as the theory of the automatic stabilizer would require, the politicians sought to gain support by cutting taxes—particularly to favor the inflators who have been gaining the fastest increases in income and help them save. The effects were not what was hoped, because the windfalls provided in this way add much less to real production than ordinary income would and add much more to the bidding up of existing assets. Leaving funds with those who already have good incomes can hardly provide jobs for the unemployed, but it helps reduce private borrowing, thus translating private into government deficits.

Despite all the fallacies in it, the campaign to "cut government down to size" will continue. The objective is not really to improve the economy but to effect a transfer of power from the public to the private sector. To whom? Not the individual worker or citizen! A majority of these see no real choice in the present political arrangements and stay home on election day. It can only be transferred to the already powerful, to the corporate sector.

The further efforts to balance the 1981 budget completely by cutting expenditures are just part of the misguided policy that courts disaster. They will add a little to the deflationary impact, and that little will further depress the real cycle. Hence, it will add to the already growing underutilization of capacity and ensure that capital spending will join other key components on the skids.

That the budget can turn out to be balanced in 1981 is improbable. As usual in recessions, unemployment compensation will rise, the government will try something to sustain the economy, probably something costly but with little effect, and at the same time revenues will fall as national income declines. For these reasons, deficits rise in recessions, although for political reasons, surpluses are not forthcoming in recoveries.

The top financial corporations in particular have led the campaign to put across the present policy. It fits their desire to give greater gains to the owners of wealth but makes no sense for the economy as a whole. Their temporary success shows the power of self-serving propaganda, endlessly repeated by executives, employees, consultants, experts, and lobbyists. In its current acceptance, it is in effect a national policy by and for a particular group. Over the longer term, a final solution cannot be achieved by public relations methods involving support by the mass media. When the policy fails, new solutions must be sought in the facts of progress, welfare, and equity.

The Worst Can Happen

The recession of 1974–75 did not set a limit on declines, it merely showed that deflationary cyclical forces are alive and potent. Consider the potential losses as real and credit cycles interact. In the real cycle, the Depression showed that there is no floor under private investment much above zero. In 1979 gross investment rose to a rate of almost $400 billion and consumer durables to over $200 billion. In the credit cycle, private debt typically swings over to liquidation. In 1979 funds being raised by private borrowers reached a rate of $350 billion. The magnitudes are so large that even much less than the potentials will put the situation out of control.

Policy could hardly be worse than deliberately trying to break a boom with a conjuncture of peaks in the two cycles. In 1929, the Fed's tightening to curb stock market speculation had little effect in starting the Depression, and any it did have was accidental. Today, the measures adopted are much more extreme, fully premeditated, and may bring on the depression of the 1980s.

The only possible justification for this is the intention to watch the situation closely and release the brakes quickly (though not so soon as to reinstate inflation). This fails to recognize that the timing of reactions will be perverse. The lag in disinflation will extend beyond the point where the real economy has fallen too far: the transit syndrome, wage contracts, other term obligations, and compensatory government policy will keep it going. Another mistake is to think that the policy measures have symmetrical effects; the cyclical forces are too powerful and the positions of businesses and consumers will be too much changed to enable them to resume operations as before.

What cannot be foretold are the sociopolitical changes that will occur as unemployment rises to double-digit rates. The people, in contrast with 1929, are disillusioned with both government and big business. They are frustrated and cynical. In a depression, anger will rise and lawlessness will swell. It is hardly comprehensible, and indeed shocking, that anyone should want to take chances on the worst that could happen.

Comparative Economic Data for Selected Illinois Cities, February 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)	
	Feb. 1980	% change from Feb. 1979	Feb. 1980	% change from Feb. 1979	Feb. 1980	% change from Feb. 1979
ILLINOIS	111,222[a]	-0.4	3,462.5[a]	-2.3	$53,856[a]	+8.0
NORTHERN ILLINOIS						
Chicago	50,580	-26.6	1,663.7	[illegible]	40,926	+8.5
Aurora	2,376	-27.9	110.4	[illegible]	736	+0.8
Elgin	550	-53.7	92.1	[illegible]	642	-7.2
Joliet	1,619	-37.4	395.2	-3.6	372	[illegible]
Kankakee	343	-50.9	76.4[b]	+0.6	274	[illegible]
Rock Island-Moline	9,421	-21.6	127.1[c]	[illegible]	[illegible]	+2.9
Rockford	11,593	+294.4	155.1	[illegible]	[illegible]	+2.2
CENTRAL ILLINOIS						
Bloomington-Normal	780	-81.8	[illegible]	[illegible]	[illegible]	[illegible]
Champaign-Urbana	1,624	+129.6	52.5	[illegible]	[illegible]	[illegible]
Danville	855	+49.4	45.9	[illegible]	[illegible]	[illegible]
Decatur	500	-97.3	130.3	[illegible]	362	+2.6
Galesburg	53	-34.8	30.9[b]	[illegible]	[illegible]	[illegible]
Peoria	24,916	+2,287.6	197.0	[illegible]	[illegible]	+6.4
Quincy	1,568	[illegible]	43.6	[illegible]	[illegible]	[illegible]
Springfield	3,319	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SOUTHERN ILLINOIS						
East St. Louis	n.a.	n.a.	23.8	[illegible]	[illegible]	[illegible]
Alton	254	-75.0	76.3	[illegible]	[illegible]	[illegible]
Belleville	590	-54.7	28.2	[illegible]	371	[illegible]
Carbondale-Murphysboro	271	-27.1	36.5	[illegible]	[illegible]	[illegible]

Sources available upon request. n.a. not available.

[a] Total for cities listed. [b] Includes immediately surrounding territory. [c] Includes East Moline.

Illinois Business Indexes

Item	Feb. 1980	Jan. 1980	Dec. 1979	Nov. 1979	Feb. 1979
Leading indicator (1969=100)	90.6[a]	91.2[a]	92.0	92.7	94.2
Coincident indicator (1969=100)	154.4[a]	155.2[a]	155.3	152.9	142.9
Employment - manufacturing (in thousands)	1,217.7[a]	1,226.6	1,158.6	1,157.5	1,230.0
Average weekly hours - manufacturing	40.6[a]	40.9	40.9	41.4	40.7
Weekly earnings - manufacturing	309.9[a]	308.3	312.5	308.9	287.4
Layoff rate - Chicago	6.3	6.8	4.7	8.6	4.5
Ordinary life insurance sales (in millions)	n.a.	n.a.	$1,811	$1,513	$1,118
Retail sales (in millions)	n.a.	n.a.	$4,966	$4,251	$3,258
Coal production (in thousands tons)	5,469	5,641	4,863	5,017	4,123
Petroleum production (in thousands barrels)	1,800	1,935	1,937	1,840	1,478
Vendor performance (percent)	40.7	54.6	55.5	51.6	76.9
Building permits (in thousands)					
Residential housing units	1.16	0.95	2.03	2.34	1.83
Value of residential housing	$42,379	$35,044	$69,279	$88,867	$55,292
Value of nonresidential housing					
Industrial buildings	$115,103	$26,212	$25,012	$27,900	$20,603
Office, banks, and professional buildings	$27,987	$29,490	$53,196	$61,000	$14,788
Stores and other mercantile buildings	$18,296	$18,723	$22,330	$28,939	$18,850
Other	$24,775	$25,264	$23,176	$49,884	$10,788
Consumer price index					
North Central US	n.a.	-	125.1	-	112.4
North Central/population more than 4,000,000	n.a.	-	126.3	-	112.7
North Central/population 385,000 to 1,250,000	n.a.	-	124.6	-	112.7
North Central/population 75,000 to 385,000	n.a.	-	123.7	-	111.8
North Central/population less than 75,000	n.a.	-	123.0	-	111.7
Chicago	232.7	230.3	228.4	225.9	202.6
St. Louis	-	232.7	-	225.7	-
Farm prices	112	114	111	107	116
	1979:III	1979:II	1979:I	1979:IV	1978:II
Personal income (in millions)	$113,682	$110,286	$106,920	$103,397	$101,587

Sources available upon request. [a] preliminary. n.a. not available.

Employment By Type and Major Industrial Sources, Illinois SMSAs and Counties, 1978

	Total employment	Number of proprietors	Wage and salary employment									
			Total	Farm	Nonfarm							
					Total	Govt.	Private nonfarm					
							Total	Mfg.	Trans.	Trade	Services	Other*
United States	102435000	9347000	93088000	1293000	91795000	18094000	73701000	20581000	4912000	19651000	18130000	10427000
Illinois	5381228	425237	4955991	35500	4920491	788088	4132403	1292688	283095	1097947	936933	521740
SMASs												
Bloomington-Normal	56556	6481	50075	1018	49057	8016	41041	7403	2987	11438	9252	9961
Champaign-Urbana-Rantoul	82265	7066	75199	694	74505	30308	44197	7355	2604	17036	12193	5009
Chicago	3503205	166763	3336442	6075	3330367	461833	2868534	870146	197936	769519	669741	361192
Davenport-Rock Is-Moline	188503	15383	173120	1063	172057	30160	141897	48384	8027	40170	29504	15812
Decatur	64426	5088	59338	395	58943	5507	53436	20751	4808	11604	10613	5660
Kankakee	45155	4054	41101	759	40342	10119	30223	10389	1447	8038	7431	2918
Peoria	181884	13836	168048	1149	166899	22103	144796	54962	7431	36682	29657	16064
Rockford	138416	9046	129370	560	128810	13691	115119	56010	5646	24907	19970	8586
Springfield	1138994	68266	1070728	2757	1067971	166212	901759	261836	70028	232522	231132	106241
St. Louis	100549	9035	91514	1049	90465	26229	64236	8024	5355	19420	19688	11749
COUNTIES												
Adams	34690	4736	29954	375	29579	3516	26063	8700	1448	7535	6214	1878
Alexander	4553	754	3799	98	3701	747	2954	1048	363	833	546	160
Bond	5207	1594	3613	151	3462	581	2881	525	145	840	1188	174
Boone	14340	1456	12884	271	12613	1295	11318	7691	546	877	1151	746
Brown	2217	993	1224	109	1115	362	753	25	0	275	0	89
Bureau	15173	3695	11478	489	10989	2120	8869	3442	440	2123	1763	1101
Calhoun	1993	1005	988	120	868	323	545	0	19	243	198	76
Carroll	7173	2129	5044	254	4790	1521	3269	731	611	718	0	335
Cass	5597	1270	4327	202	4125	804	3321	1293	0	649	0	143
Champaign	82265	7066	75199	694	74505	30308	44197	7355	2604	17036	12193	5009
Christian	13609	2770	10839	724	10115	1774	8341	1545	0	2424	0	1982
Clark	6637	2076	4561	243	4318	938	3380	820	274	1061	607	618
Clay	5497	1755	3742	73	3669	867	2802	661	227	887	444	583
Clinton	10278	2336	7942	236	7706	2359	5347	914	421	1196	1573	772
Coles	23120	2902	20218	288	19930	3846	16084	6220	1488	4188	2468	1608
Cook	2796044	115576	2680468	1276	2679192	344887	2334305	699725	170005	617373	550105	297097
Crawford	9370	1817	7553	135	7418	1071	6347	3042	349	1375	736	845
Cumberland	3558	1499	2059	101	1958	552	1406	473	0	426	340	96
De Kalb	30883	3523	27360	818	26542	7125	19417	8053	798	5621	3195	1552
De Witt	6742	1575	5167	186	4981	936	4045	1130	587	1400	0	200
Douglas	8688	1711	6977	303	6674	835	5839	1711	530	1437	876	1285
Du Page	243912	17296	226616	943	225673	26926	198747	43682	10838	64869	51656	26627
Edgar	9086	2405	6681	417	6264	1079	5185	2133	0	1345	943	460
Edwards	3570	1001	2569	108	2461	274	2187	1273	93	216	226	104
Effingham	15777	2814	12963	193	12770	1545	11225	4082	873	3216	2065	989

Employment By Type and Major Industrial Sources, Illinois SMSAs and Counties, 1978 (continued)

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			Total	Farm	Nonfarm							
					Total	Govt.	Private nonfarm					
							Total	Mfg.	Trans.	Trade	Services	Other#
Fayette	8656	2698	5958	265	5693	1599	4094	1201	255	1444	709	476
Ford	6975	1794	5181	345	4836	846	3990	1244	224	1190	840	456
Franklin	12410	2584	9826	110	9716	2171	7545	663	330	1766	1678	3108
Fulton	14133	3357	10776	353	10423	2384	8039	1821	477	1805	2335	1312
Gallatin	2817	767	2050	164	1886	393	1493	190	18	364	187	730
Greene	5459	2001	3458	389	3069	775	2294	339	298	839	589	229
Grundy	12988	1704	11284	161	11123	1667	9456	2946	0	2853	1091	957
Hamilton	3119	1344	1775	120	1655	671	984	130	0	329	141	306
Hancock	8316	3105	5211	299	4912	1321	3591	616	290	942	1248	486
Hardin	1435	401	1034	13	1021	263	758	0	79	114	229	327
Henderson	2283	991	1292	254	1038	466	572	19	50	262	129	103
Henry	19967	4558	15409	513	14896	2752	12144	2964	0	4289	2160	1896
Iroquois	13538	4044	9494	773	8721	1646	7075	2566	290	2187	1413	619
Jackson	27125	2634	24491	314	24177	10316	13861	2003	1199	5007	3479	2173
Jasper	5333	1797	3536	133	3403	523	2880	694	255	613	244	1068
Jefferson	15221	2921	12300	138	12162	2065	10097	1090	686	2760	2830	2731
Jersey	5720	1420	4300	247	4053	1109	2944	299	190	883	1346	220
Jo Daviess	8107	2479	5628	258	5370	1090	4280	1886	191	1089	672	442
Johnson	2412	997	1415	86	1329	476	853	127	0	332	173	82
Kane	128735	8254	120481	1057	119424	18779	100645	38285	3865	26795	21211	9863
Kankakee	45155	4054	41101	759	40342	10119	30223	10389	1447	8038	7431	2918
Kendall	16158	1583	14575	335	14240	1273	12967	9608	219	1328	1233	487
Knox	30855	3606	27249	491	26758	4713	22045	8467	1814	5261	4530	1973
Lake	190019	12280	177739	1074	176665	49840	126825	47465	4792	34910	26839	11029
La Salle	50938	7240	43698	724	42974	5537	37437	15154	2293	9855	6818	3317
Lawrence	6589	1277	5312	160	5152	887	4265	1046	183	805	1048	834
Lee	16898	2876	14022	259	13763	4944	8819	3179	711	1682	1912	760
Livingston	17095	3987	13108	525	12583	3405	9178	2888	466	2334	2134	1356
Logan	15949	2492	13457	458	12999	3968	9031	2629	522	2429	2685	759
McDonough	15216	2887	12329	317	12012	3643	8369	2491	411	3239	1417	760
McHenry	50537	5934	44603	1215	43388	6033	37355	17965	1162	8164	5478	4586
McLean	56556	6481	50075	1018	49057	8016	41041	7403	2987	11438	9252	9961
Macon	64426	5088	59338	395	58943	5507	53436	20751	4808	11604	10613	5660
Macoupin	15680	4144	11536	476	11060	2421	8639	1174	593	2680	1918	2274
Madison	97609	8063	89546	505	89041	14983	74058	30129	5286	15765	14956	7922
Marion	18330	3299	15031	138	14893	2369	12524	3950	1378	3168	2510	1518
Marshall	4692	1370	3322	169	3153	680	2473	798	138	761	436	278
Mason	6535	1728	4807	382	4425	1018	3407	943	263	1289	422	490
Massac	5019	1145	3874	64	3810	897	2913	1022	549	581	495	260
Menard	3681	1171	2510	273	2237	671	1566	243	172	394	316	111

Employment By Type and Major Industrial Sources, Illinois SMSAs and Counties, 1978 (continued)

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			Total	Farm	Nonfarm							
					Total	Govt.	Private nonfarm					
							Total	Mfg.	Trans.	Trade	Services	Other#
Mercer	5424	2092	3332	361	2971	1284	1687	164	197	713	342	268
Monroe	4972	1591	3381	299	3082	813	2269	98	130	674	502	565
Montgomery	12425	3178	9247	244	9003	1493	7510	1769	681	2001	1654	1405
Morgan	19844	2644	17200	409	16791	4368	12423	3491	1023	3089	3478	1337
Moultrie	4723	1442	3281	184	3097	585	2512	453	139	791	774	355
Ogle	18416	3451	14965	837	14128	2436	11692	6382	370	2744	1334	862
Peoria	114074	7373	106701	274	106427	15005	91422	26176	4763	25958	23486	11039
Perry	8553	1666	6887	119	6768	1076	5692	1886	199	916	1004	1679
Piatt	6034	1568	4466	345	4121	945	3176	694	275	849	1013	345
Pike	7630	2758	4872	640	4232	1021	3211	570	252	1030	800	559
Pope	1193	544	649	75	574	357	217	0	0	50	0	50
Pulaski	2827	701	2126	73	2053	589	1464	170	110	218	900	62
Putnam	2468	545	1923	133	1790	297	1493	972	132	202	99	48
Randolph	14945	2813	12132	223	11909	2600	9309	3946	866	1678	1289	1530
Richland	8387	1620	6767	87	6680	1449	5231	1921	451	1211	954	694
Rock Island	92235	5261	86974	213	86761	19459	67302	27252	4270	17009	12477	6061
Saint Clair	95811	7555	88256	316	87940	25614	62326	11494	6438	17089	17961	9344
Saline	9392	1788	7604	69	7535	2089	5446	226	485	1670	1655	1410
Sangamon	96868	7864	89004	776	88228	25558	62670	7781	5183	14556	19372	7347
Schuyler	3149	1328	1821	189	1632	551	1081	99	40	444	304	194
Scott	2322	775	1547	138	1409	401	1008	91	116	293	114	394
Shelby	7213	2885	4328	235	4093	1274	2819	577	224	931	698	382
Stark	2670	974	1696	176	1520	340	1180	305	84	392	266	124
Stephenson	25503	3458	22045	437	21608	3237	18371	8738	568	3265	2667	3133
Tazewell	58256	3940	54316	300	54016	5722	48294	27594	2384	7355	4728	4458
Union	7774	1502	6272	253	6019	3002	3017	1351	204	566	628	263
Vermilion	44934	4756	40178	649	39529	6323	33206	13189	2304	7162	7134	3417
Wabash	7004	1073	5931	87	5844	783	5061	1802	210	796	816	1430
Warren	8730	2183	6547	404	6143	1224	4919	1030	294	1808	1400	355
Washington	5253	2008	3245	226	3019	888	2131	358	153	757	518	345
Wayne	7637	2521	5116	185	4931	1010	3921	1093	239	1196	641	752
White	6808	1921	4887	174	4713	1175	3538	455	300	1143	710	930
Whiteside	27949	3104	24845	409	24436	3793	20643	11007	668	4666	3008	1294
Will	93958	7423	86535	510	86025	15368	70657	23024	7274	17408	14452	8499
Williamson	19552	2510	17042	51	16991	3360	13631	3952	1198	3632	2071	2778
Winnebago	124076	7590	116486	289	116197	12396	103801	48319	5100	18261	18819	7455
Woodford	9554	2523	7031	575	6456	1376	5080	1192	284	1258	1443	468

#Includes mining, construction, finance-insurance-real estate, and other industries.
0Not shown to avoid disclosure of confidential information. Data included in totals.
Source: US Department of Commerce, Bureau of Economic Analysis.

EXPORT OR BURN? American Grain and the Energy Equations

FOLKE DOVRING

Americans have long looked to exports of feed grains, wheat, and soybeans as an important source of revenue to pay for our imports including petroleum, which is the main reason for our foreign exchange deficit. Recent sharp rises in international oil prices should make us ask whether grain export for oil import still makes economic sense. Instead of exporting the grain we might make fuel alcohol from it, and this could give us more fuel than the oil imported for the grain export income. If conversion of crops to fuel were to take on large scope, this might profoundly alter our international economic relations, both trade and aid.

The Grain-Fuel Ratios

There are two sets of ratios to discuss. One is the ratio of imported oil to the amount of alcohol fuel we could make from the grain we export, at the prices at which the goods are traded. The other is the ratio of the energy used to produce grain to the energy that can be imported for the proceeds of the exported grain, or be obtained by making alcohol fuel from the grain.

The first of these sets of ratios is relatively simple, and the reasoning will center around relative prices and opportunity costs. The second set is more difficult to compute and requires marginal analysis.

Alcohol Versus Oil

From cereal grains we may obtain ethyl alcohol, a high-grade fuel which can substitute, blended or alone, for petroleum fuels (gasoline and diesel fuel). From a bushel of corn, distillers obtain up to 2.6 gallons of pure alcohol. High-protein distillery residues are used as stockfeed or as raw material for human food. The residue weighs about 30 percent of the grain. A whole bushel of corn starch yields about 3.7 gallons of alcohol, and this ratio is meaningful for the following discussion.

Assume, for instance, that most of US feed grain exports in recent years, some 2 billion bushels a year, had been used for alcohol production instead of being exported, and that another 850 million bushels had been diverted from domestic feed use to alcohol production. The 2.9 billion bushels of feed grain would have supplied 7.4 billion gallons of alcohol and about 850 million bushels of distillery residue. In net terms, the 7.4 billion gallons of alcohol would have been obtained by forgoing the export of 2 billion bushels of grain.

Producing alcohol from grain also consumes fuel, as will be discussed later. For the moment let us assume that the grain is being produced in any event.

A barrel of crude oil contains 42 gallons. To become usable it must be refined and that takes energy, much of it from high-grade sources. Refinery output also includes some nonfuel products and some fuels of lower value. Depending on the choice of accounting convention, the amount of high-grade fuels obtained (net) from a barrel of crude oil is in the range of 29–35 gallons.

Ethyl alcohol contains fewer heat units per gallon than petroleum fuels. Because of octane effect and other special circumstances, the work done by a gallon of alcohol is sometimes as high as that of gasoline and sometimes less. Alcohol from a bushel of grain starch replaces about 1/10 barrel of crude oil.

It follows that the export price of a bushel of corn ought to exceed 1/10 of the import price of a barrel of crude oil, if oil import paid for by grain export is to be more advantageous to the nation than alcohol production. Table 1 shows selected proportions between grain price and oil price.

The break-even value (3.5 gallons of refinery feedstock per bushel of corn) is obviously not satisfactory. There have to be some gains in trade, else the transactions would not be worth their cost and uncertainties.

The OPEC price level of a year ago (about $20 a barrel) gave us a little more motor fuel for 10 bushels of corn than we could distill from the same grain. In the current price range, $26 is close to a fuel deficit, and the higher price levels ($30 to $35, up to $40 on the spot markets) give us less fuel for grain export than from grain alcohol.

The reasoning for corn holds, with some variation, also for grain sorghum. For wheat and soybeans, current prices may appear more favorable, but this is so in appearance only. Nor is it relevant that soybeans are not a suitable feedstock for alcohol production. Relevant instead is the opportunity cost of using land for growing wheat and soybeans. Feed grains produce higher physical yields (on the same kind of land) than wheat and soybeans, more or less in inverse proportion to the price ratios of feed grains to wheat and soybeans. Hence the

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break-even prices for wheat and soybeans, relative to petroleum, should be proportionately higher than feed grains, and current price ratios are about as unsatisfactory for all the grains.

It is a different matter that a long-range alcohol program might prefer other crops (silage crops or sugar crops) and tree plantings, which can bring higher fuel yields per acre than grains. But this only underscores the conclusion because it would further raise the level of grain prices (relative to oil prices) at which grain export makes economic sense for the nation.

At current oil prices, feed grains for export should fetch \$3.50 to \$4 per bushel, and other grains in proportion (wheat \$6, soybeans \$9). If grain prices are not raised, crude oil of average quality should not go higher than \$20 a barrel.

Only the absence of large distillery capacity prevents the US from pursuing a price policy corresponding to the foregoing observations. In about two years this might change substantially, depending on what investment decisions are taken now.

Table 1. Alcohol Versus Oil: Energy/Price Ratios for Refined Fuel

then a bushel of corn will buy this many gallons of refinery feedstock when corn sells for (\$/bushel)	When a barrel of crude oil yielding 35 gallons of refinery fuel sells for (\$/barrel) 20	25	30	35	40
2.00	3.50	2.80	2.33	2.00	1.75
2.50	4.38	3.50	2.92	2.50	2.19
3.00	5.25	4.20	3.50	3.00	2.63
3.50	6.13	4.90	4.08	3.50	3.06
4.00	7.00	5.60	4.65	4.00	3.50

Table 2. Grain Versus Oil: Energy/Price Ratios for Crude Oil

then a bushel of grain will buy this many gallons, when crop sells for (\$/bushel).	When a barrel of crude oil, at 42 gallons/barrel, sells for (\$/barrel), 20	25	30	35	40
2.00	4.20	3.36	2.80	2.40	2.10
2.50	5.25	4.20	3.50	3.00	2.63
3.00	6.30	5.04	4.20	3.60	3.15
3.50	7.35	5.88	4.90	4.20	3.68
4.00	8.40	6.72	5.60	4.80	4.20
5.00	10.50	8.40	7.00	6.00	5.25
6.00	12.60	10.08	8.40	7.20	6.30
7.00	14.70	11.76	9.80	8.40	7.35

Input Energy Versus Alcohol

The foregoing does not mean that alcohol fuel from crops is always an acceptable use of resources. Energy input into crop production may be so large that grain production for alcohol fuel means a net loss of high-grade fuels. Energy used in distilleries is a separate matter. That may be obtained from low-grade fuels such as coal, wood, or crop residue. But the energy used (directly and indirectly) in farming is mainly high-grade fuels (oil and gas) and must be accounted for. Output of fuel must be much higher than the input of high-grade fuels to justify other costs.

Energy intensity of crop production must be analyzed for marginal as well as average costs of production, because it must be assumed that the US farming industry is primarily intended to supply the domestic population with food. Quantities exported or processed into fuel should be regarded as additional. The cost to the national household of carrying on the export and/or fuel enterprises should carry marginal rather than average costs, extending to marginal quantities within that part of production intended for export or fuel. Whatever marginal production does not pay its way, in export or for fuel production, should eventually be discontinued. International oil prices have not yet worked their way through the entire energy complex of the US. Price controls on domestically produced fuels have contributed to understating marginal costs of production.

As already shown, an additional bushel of grain intended for alcohol production has a potential fuel value of 3.7 gallons, or the equivalent of about 1/10 of a barrel of crude oil. Comprehensive energy analysis points to a break-even value of about 4 gallons of input energy. Such a level of total (direct plus indirect) energy input is no more acceptable in distilleries than in foreign trade. Reprocessing of the same or equivalent material brings uncertainties and unconventional costs which may be hidden behind tax relief and other subsidies.

Therefore, input energy per bushel should not exceed the crude-oil equivalent of 3 gallons. A one-third addition to the input energy appears as a modest rate of return to the nonenergy costs of the process.

Energy analysis of grain production cannot yet be made entirely complete or very accurate. This is, however, not as important for marginal as for average cost calculations. We already have acceptable data for the main elements of variable costs, namely fertilizers, machine operation, and irrigation where applicable.

Data for the following have been drawn mainly from the *Firm Enterprise Data System* (FEDS), a loose-leaf annual publication with crop budgets separately for several crop enterprises within each state and usually for each of several production areas within each state.

Average energy cost of producing grain in the US usually comes in the range of 100 to 200 thousand Btus per bushel of grain. A gallon of crude oil contains about 138 thousand Btus, a gallon of diesel fuel nearly the same (138,200). A gallon per bushel is a frequent magnitude which may be used as a rule-of-thumb.

Marginal analysis of grain production can be pursued on three principal type situations: irrigated lands, rainfed lands with high fertilizer application, and rainfed lands with low yields per acre.

Irrigated Grain Lands

The FEDS budgets frequently give separate data for irrigated and unirrigated lands under the same crop within the same production area. The marginal energy cost of grain from irrigation can be computed by subtracting the costs and the output of nonirrigated lands from those of the irrigated lands.

About one-tenth of all grain production in the US comes from irrigated land. The 1974 Census of Agriculture shows over 11 million acres in corn, sorghum, and wheat under irrigation, producing close to 900 million bushels of these three grains. The FEDS data for recent years show even larger acreages for some of the irrigation states.

Not all irrigated grain farming has high energy costs. The Southwest generally has; nine states (Arizona, California, Colorado, Kansas, Nevada, New Mexico, Oklahoma, Texas and Utah) have more than half of the irrigated grain lands and production, and here the irrigation costs are often high.

Some areas have only irrigated grain lands. Arizona has several hundred thousand acres in wheat, sorghum, and barley, yielding about 60–75 bushels per acre. With about 2,000 kwh of electricity for irrigation pumping per acre and high fertilizer inputs, energy input (direct and indirect) varies from 3½ to almost 5 gallons (equivalent) per bushel, which is clearly out of bounds for conversion to fuel.

Other areas are less extreme in their average energy input per bushel of grain under irrigation, but their marginal cost for grain that is additional through irrigation are higher. In Texas, for instance, there are areas in which irrigated wheat and grain sorghum have average energy requirements in the range of 2 to 2½ gallons (equivalent) per bushel, but the marginal requirement rises to the range of 3½ to 4 gallons. In some cases inferences may be made from other crops. Western Texas (area 100) has only irrigated corn, occupying about a million acres. Average energy requirements come in the range of 1¾ to 2½ gallons (equivalent) per bushel. Comparison with nonirrigated sorghum indicates the marginal energy cost per bushel of corn additional through irrigation is above 3 gallons.

A tentative estimate of the volume of cereal grains produced under energy-expensive irrigation comes to 300 million bushels (corn, sorghum, wheat).

High-Yielding Rainfed Lands

High application of nitrogen fertilizers often shows diminishing marginal returns. Sometimes this can be shown from macro data. In Illinois, use of nitrogen fertilizers increased from around 600 thousand short tons in the early 1970s to nearly 900 thousand tons in the late 1970s; almost all of the increase went to corn for grain. Up to 1971, nitrogen used for corn was close to 1 pound per bushel which is not excessive, since the uptake of nitrogen in corn is close to .8 pound per bushel. From 1971 to 1978, an increase of 274,000 short tons (548 million pounds) of nitrogen was accompanied by an increase in corn production of about 250 million bushels, thus about 2 pounds per bushel — clearly increasing but not yet excessive in the average. Nitrogen fertilizer production takes from 33,000 Btu per pound of ammonia to 49,000 for solid urea. The average for all nitrogen fertilizers is about 38,000 Btu per pound of nitrogen.

Returns to alternative levels of fertilizer application are known only in broad features. It is clear that high nitrogen applications may produce very small marginal yields. The point has been made many times. Analysis of yield response data for Illinois for 1971 led to the conclusion that limiting nitrogen application to 100 pounds per acre would reduce the yield of corn by only 4 or 5 bushels per acre, about 5 percent. The result may be overstated because of variations not included in the material such as new varieties and higher plant densities per acre. The higher average level of application in recent years may offset some such factors.

No matter what the time trend is and the reasons for it, in each season there is some overapplication of nitrogen fertilizers relative to whatever production technology is used. Higher prices of fertilizers, corresponding to OPEC oil prices, would no doubt reduce farmers' willingness to apply nitrogen at current levels. A 3-percent reduction in the production of corn and grain sorghum appears as a modest estimate of such response to fertilizer prices, and that would bring down total supply of feed grains by a magnitude of 200 million bushels.

Low-Yielding Rainfed Lands

Here too we should expect some lands which are marginal for grain production. The FEDS data do not directly reveal energy costs in excess of 3 gallons (equivalent) per bushel for any area-crop budget (except in years of crop failure, in some areas) but that is not to be expected. Over 2 gallons (equivalent) per bushel is shown as average here and there, and then some of the lands entering such averages are likely to be over 3 gallons per bushel. Areas with recurrent crop failures should of course be judged on the basis of averages over suitable time periods.

Such indications confirm the intuitive conclusion that there are submarginal lands in production. No figure can be estimated ever so tentatively at this stage, but the point underscores that the sum of the two previous estimates, of about 500 million bushels of cereal grains being produced beyond the energy margins in the US, is on the low side.

Energy Input Versus Imported Oil

High input of energy into grain for export can be justified on condition that the proportion of grain export price and oil import price is such as to produce a substantial positive balance of energy import.

Comparison is now with crude oil (at 42 gallons per barrel) rather than with refinery output. This is because the energy analysis of grain production includes indirect energy uses (through the various "backward linkages" of each activity — the inputs received from other industries,

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both energy producers and producers of other input goods and services).

Table 2 shows the grain price/crude oil price proportions for a number of selected levels of price of grain and oil.

The problem discussed in connection with alcohol from energy-marginal grain is complicated in relation to exports because of the several levels of energy-into-grain found in various grain-producing areas, and also because of the prices of the various grains.

Acceptable price combinations would be those shown on the diagonal of the table — 4.2 gallons per bushel, implying a 40 percent gain over 3 gallons as the maximum acceptable level of input energy for grain alcohol. (The gain is smaller in fuel terms, when the nonfuel parts of the crude oil are removed.) In the absence of competition with an alcohol industry, the lowest break-even price for grain is now lower. This is the set of price ratios below which all 500 (plus) million bushels of energy-marginal grain should be rejected also for export. But some should be rejected even at higher price ratios, because their marginal energy cost is higher than 3 gallons per bushel, a distinction not needed in relation to alcohol production. Many wheat areas have marginal energy cost considerably higher than 3 gallons (equivalent) per bushel, and then the higher price of wheat would not always be sufficient to justify such production on the grounds that the export proceeds would help to pay for oil imports.

To Feed the World . . .

Food as foreign aid has been attractive in the past, when both commercial exports and foreign aid shipments were advantageous to the US and its farming industry. With low energy prices, marginal costs of production were almost always low and the largest volume of output therefore appeared as the most profitable.

Recent quantum jumps in oil prices now make the proposition two-faced. Between commercial exports and aid shipments we were able in the past to differentiate commercial and concessional terms. It is hard to visualize any similar distinction as regards energy use in agricultural production, or fuel use of agricultural products.

. . . Or Mind Our Own Business?

Nearly half of all cereal grains in international trade comes from the US. The country's share is too large for comfort and still, it appears, not large enough for decisive leverage on world markets — not as long as we depend upon the buyers about as much as they depend upon us. The "bushel for a barrel" approach to grain and oil prices is at best viewed cautiously as requiring an export cartel including several other countries.

And yet, some link between the prices of food and those of fuel has to be found. The current OPEC price levels are out of step with the realities of food farming and the potentials of biomass fuel production. The problem has so far been obscured by price controls in this country on domestic sources of energy, which have rendered profitable to farmers some lines of energy-marginal production which are not profitable to the national economy. By exporting energy-marginal grain we are now, in some sense, subsidizing the world's food. Implicitly we do even more of the same by not converting more of our grain into fuel.

Where would this leave the poor countries — those with a need for food aid? The device of the 1950s and 1960s, of dual pricing (concessional terms for food aid) does not apply. Subsidized food going to the poorest countries will then, in a marginal sense, subsidize the oil-exporting countries because maintaining food production at the highest level possible will maximize our demand for oil which means more of the high-priced oil.

Unless some rational proportion between the prices of grain and oil is found, this country might recede into a posture of increasing self-sufficiency and reduced interdependence with the rest of the world. The point should interest not only OPEC countries but also other countries with large exports of oil and large import demand for food, such as Mexico and the Soviet Union.

1978 Income and Employment Data Available

Detailed BEA income and employment data are available for each of the 102 counties and 10 SMSAs of Illinois for 1971–1978. To obtain the data, write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois 61801. A charge of $30 will be made to cover costs.

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Recession and Unemployment, Inflation and High Interest Rates

The economy has contracted abruptly since early this year, following a prolonged period of lagging growth and gradual deterioration. Real output has fallen sharply; employment has declined and unemployment has jumped higher; income growth has moderated and consumer spending has slowed. Reflecting a weakening in demand, there appears to have been some recent moderation in inflation, including a dramatic reduction in interest rates.

Now that the onset of recession is clearly in evidence, public attention has shifted to its prospective duration and severity. The Carter Administration has an interest in assuring us that we are experiencing a modest, short-lived adjustment — carefully orchestrated to reduce inflation without undue adverse consequence for anyone. Political challengers portray an economy forced into woeful straits by wrong-headed policies of the administration. Each suggests that he can do a better job of managing the economy than the incumbent. There has been a marked lessening in the sense of urgency relating to inflation, while concern has intensified over mounting unemployment.

Economic policy measures have turned increasingly restrictive during the past half year. Fiscal developments show a gradual tightening over more than a two-year period. In contrast, restrictive monetary measures have been limited to the brief period since early this year.

Contraction in the Economy

Economic activity has declined since early this year. The contraction in the real physical volume of activity is reflected in several measures available on a monthly basis, and will, at length, be confirmed by quarterly gross national product statistics. There have been pronounced recent declines in industrial production, housing, and employment.

The actual decline in economic activity is the culmination of a general weakening that began more than a year ago. Indeed, there has been essentially no growth in the economy since the end of 1978.

Industrial output has fallen sharply so far this year. Since January, the Federal Reserve Board's Index of Industrial Production — a measure of output of the nation's mines, factories, and utilities — has dropped at more than a 13 percent annual rate. The declines in production have been spread widely throughout the economy, but have been particularly pronounced in durables. The automobile industry has been especially hard hit by the current downturn. In turn, however, declines in auto output adversely affect their suppliers — tire manufacturers, steel producers, and so forth.

Production had remained virtually unchanged on balance for the preceding year. From December 1978 to January 1980, industrial output rose less than 1 percent. In contrast, production rose at more than an 8 percent annual rate from March 1975 (the trough of the 1974–75 recession) to December 1978.

Housing starts, another measure of physical output, have registered further declines this year. At an annual rate of 920 thousand units in May, starts are running more than 40 percent below their year-earlier pace. It is possible to argue that the depressed pace in housing extends over the past 7 or 8 years. Housing starts reached a peak of 2.4 million units in 1972.

The labor market has weakened dramatically since the end of 1979. Total employment, at 97 million in mid-May, was down by 900 thousand from December's level. At an annual rate, this reduction represents a 2.2 percent decline. During the four years of economic expansion ending in March 1979, employment rose at a 3.6 percent annual rate. In the year of economic weakness preceding the downturn, employment rose just over 1 percent.

Unemployment has risen sharply, reflecting softening employment; the rate has jumped from 6 percent in February to 7.8 percent in mid-May. During the 1975–79 economic expansion, when employment was growing rapidly, unemployment declined from 9 percent to just under 6 percent. Last year, when employment growth had virtually ceased, the unemployment rate fluctuated around the 5.8 percent level.

Real Estate Market Performance: The Champaign County Case

By Thomas B. Bryan and Peter F. Colwell / Page 6

Income growth has slowed in recent months, also reflecting the slowdown in employment. In May, personal income actually fell. Declines in personal income are unusual, in that they reflect a host of income payments partly or wholly unrelated to current production activity: social security, unemployment compensation, welfare payments, interest, and rental income. Even so, the rate of growth in personal income is responsive to underlying shifts in the economy. So far this year, income has risen at a 5 percent rate, down from rates of growth of 11 percent and 13 percent in 1978 and 1979.

Consumer spending appears to have slowed, removing the major remaining source of strength in the economy. Retail sales have declined at more than a 20 percent annual rate since January. Bear in mind that the dollar volume of sales declined even though prices increased. Since January, the real physical volume of sales has fallen at nearly a 30 percent annual rate. Consumer spending on automobiles and other durables has been especially sluggish.

In reviewing the unfolding recession — indeed, in anticipating prospective future developments — it is clear that cutbacks in durables of all sorts play a major role. This is the very nature of a recession. It is possible for households and firms to continue to consume the services of, or use, durables — such as automobiles and refrigerators, or lathes and drill presses — postponing their replacement until circumstances have improved. In contrast, food, medical services, and other nondurables are consumed rapidly; if used they must be replaced.

Reduction in Inflation

There is limited evidence that the rate of inflation has moderated in recent months. Since March, producer prices of finished goods have risen at a 6.2 percent annual rate. In the preceding three months these prices rose at nearly a 19 percent rate. Similarly, consumer prices have risen at a 12 percent rate since March, compared with an 18 percent rate in the preceding three months.

If, in fact, inflation has moderated, there is a presumption that declining aggregate demand has contributed to this development. The theory underlying such a view is reasonably straightforward. In simplified form, it is that the rate of inflation emerges from a combination of supply and demand. This idea is represented in Chart 1. The vertical line represents the rate of change in prices and the horizontal line the rate of change in quantities (that is, output). The line S_0 indicates that the aggregate quantity of goods and services supplied by the economy expands in response to price increases; the line designated as D_0 (and D_1) indicates that aggregate quantity of goods and services demanded expands in response to price reduction.

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A reduction in aggregate demand is depicted in Chart 1 by a shift in the lines D_0 to D_1. Note that rates of change in both quantities and prices declined. Quantities decline from $\dot{Q}_0$ to $\dot{Q}_1$; inflation rates decline from $\dot{P}_0$ to $\dot{P}_1$. The purpose of this chart is to illustrate the recent moderation in inflation, that is, resulting from falling aggregate demand.

It is the nature of demand management efforts to reduce inflation — that is, restriction brought about by monetary and fiscal policy — to force a "trade-off" between inflation and unemployment. As the growth in real output is slowed or reversed, employment growth is either moderated or reversed — with a resulting adverse effect on unemployment.

Declines in Interest Rates

Interest rates have fallen markedly in recent months. Short-term interest rates — yields on Treasury bills, commercial paper, 90-day certificates of deposit, federal funds, and other issues of short maturity — declined dramatically beginning in late March and early April. After reaching levels of 15–18 percent, these interest rates declined to the 8–10 percent level by mid-June. The prime rate, the rate of interest commercial banks charge their major corporate customers, fell from 20 percent in mid-April to 12 percent in mid-June.

The precipitous declines in interest rates reflect a major weakening in credit demands and may also reflect some contraction in inflation. That is, there may have been a reduction in expected rates of inflation.

On a practical level, interest rate declines will exert a substantial reduction in *measured* inflation. The consumer price index is importantly affected by interest rate changes. The rise in interest rates contributed to the acceleration in *measured* consumer price increases early this year.

Restriction in Economic Policies

In recent months, both monetary and fiscal policies have contributed to the economic downturn. Over the preceding several years monetary actions had been inordinately expansive. In contrast, fiscal developments have turned restrictive over the past three years.

Monetary growth over the past three years has outrun the growth in real economic output, with the money supply consistently expanding at rates within the 5 to 7 percent range. During 1979, when output rose about 1 percent, the supply of money rose nearly 6 percent.

Money supply growth has fallen markedly since late winter. The money supply has contracted at more than a

Chart 1

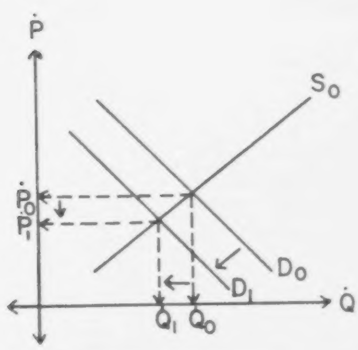


Chart 2

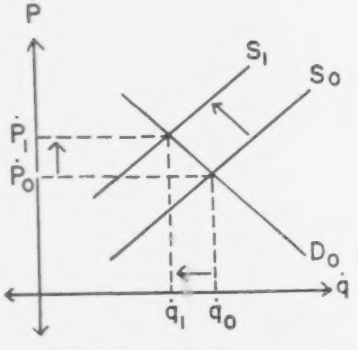
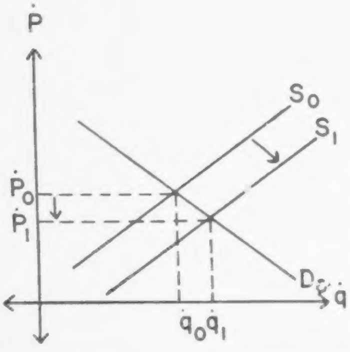


Chart 3



10 percent rate since February. This decline has approximately coincided with the weakening in the economy, the drop in credit demands, and the fall in interest rates.

By comparison, fiscal actions have moved consistently toward restriction since 1977. During the three-year period from the beginning of 1975 through 1977, the federal deficit averaged about $57 billion (on income and product account). A deficit of this magnitude represents about 15 percent of the federal expenditures budget. The deficit declined to just under $28 billion in 1978, and then fell to $11.4 billion in 1979 — 2.2 percent of the budget.

The restrictive movement in the federal budget posture reflects reasonable stability in expenditure growth coupled with an acceleration in the growth in tax revenues. Expenditures have risen at about a 10 percent annual rate since 1976, with only modest fluctuations around this growth path. Moreover, the stable growth in expenditures was achieved despite the strong upward movement in inflation. In contrast, the growth rate in tax receipts has jumped sharply in the past three years — from 8.8 percent in 1977 to 13.3 percent in 1978, then to 15.1 percent in 1979. The rise in revenue was fed by mounting inflation.

There is a view that control of inflation by demand management techniques is inappropriate in the present setting. It is argued that recent inflation has not been caused by the press of excess demand against a fully employed economy. Certainly, inflation accelerated during the past year against the background of a weakening economy. According to this view there are numerous factors acting together to reduce aggregate supply. These include rising oil prices; administered price increases by those with strong market positions — by corporations (to protect margins), and labor unions (to protect real income shares); and indexed price increases (through cost-of-living contracts) which serve to transmit previous inflationary pressures and accelerate current ones.

Inflation stemming from these factors is well entrenched in the economy; such factors provide the momentum for what is sometimes referred to as the core, or underlying, rate of inflation. They shape the environment within which inflation psychology is formed, fed, or diminished. In turn, it is plausible to surmise that the psychological framework affects profit rate objectives, the andacity and relative tenacity of labor-management negotiations, and the inflation premium contained within long-term interest rates.

According to this view of the inflation process, increased cost and adverse swings in inflation psychology serve to increase prices associated with any rate of expansion of real output. This process is depicted in Chart 2. The shift in the aggregate supply schedule from S_0 to S_1 pushes the rate of inflation higher (from $\dot{P}_0$ to $\dot{P}_1$) and reduces the pace of output increases (from $\dot{q}_0$ to $\dot{q}_1$). Such an explanation is consistent with the facts during 1979 — when the rate of inflation accelerated and the growth in real output declined sharply.

Those who view the inflation process as resulting from supply-side problems tend to advocate supply-oriented policy solutions. Senator Kennedy, for example, has argued forcefully for prices and wage controls. The hoped-for result of a price/wage control system is illustrated in Chart 3. The aggregate supply schedule would be pushed from S_0 to S_1. In part, the shift in the aggregate supply schedule — that is, the reduction in the rate of price increases associated with growth in real output — would result from limiting the acceptable price and wage appetites of business and labor. Also, if the growth in money wages can be pulled below the growth in the productivity of capital, investment would be stimulated in the longer run — further expanding the economy's capacity to produce goods and services. If this were to happen the rate of price change would fall from $\dot{P}_0$ to $\dot{P}_1$ and real output growth would move from $\dot{q}_0$ to $\dot{q}_1$.

The prospective Republican nominee for president, Governor Reagan, has advocated substantial tax cuts as a means of bringing about a shift in aggregate supply. The US Congress also seems to be toying with this approach. In earlier years, a tax cut was viewed as a means of stimulating demand. But today, the emphasis is running towards tax incentives as a means of stimulating investment and hard work. If economic policy could produce such a result, we would escape the unhappy "tradeoff" between inflation and unemployment. We would also have hit upon one of the most popular political devices known to the mind of man.

WILLIAM R. BRYAN

Comparative Economic Data for Selected Illinois Cities, April 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)		Employment (000)		Estimated work force unemployed (percent)	
	Apr. 1980	% change from Apr. 1979	Apr. 1980	% change from Apr. 1979	Apr. 1980	% change from Apr. 1979	Apr. 1980	% change from Apr. 1979	Apr. 1980	Apr. 1979
ILLINOIS	$65,453[a]	-10.0	3,480.0[a]	+8.2	$52,137[a]	+2.9	5,008.2	+1.5	7.0	6.0
NORTHERN ILLINOIS										
Chicago	32,817	-54.9	1,687.5	+8.7	39,747	+1.2	3,149.4[b]	-0.6	6.5[b]	5.0[b]
Aurora	1,476	-47.8	133.9	+20.1	636	-0.5	36.1	-2.7	7.6	5.0
Elgin	1,848	+96.4	88.6	+10.9	739	+13.2	27.8	+2.6	6.0	5.8
Joliet	7,513	+130.1	352.4	-7.5	385	+7.5	34.5	-24.0	11.8	5.2
Kankakee	107	-90.8	81.6[c]	+20.2	274	-10.2	37.9[b]	+3.6	9.1[b]	8.7[b]
Rock Island-Moline	1,753	-52.1	122.5[d]	+6.9	1,406	+20.0	171.8[e]	-0.6	6.4[e]	3.8[e]
Rockford	999	-74.8	150.8	+3.1	1,038	+11.1	125.6[b]	-1.5	7.1[b]	4.8[b]
CENTRAL ILLINOIS										
Bloomington-Normal	4,546	-5.6	51.2	+18.2	957	+1.5	54.5[b]	-1.8	5.2[b]	4.0[b]
Champaign-Urbana	1,012	-72.5	57.0	+19.0	693	+4.8	78.2[b]	+2.9	4.9[b]	3.9[b]
Danville	675	-85.1	45.6	+9.1	272	+17.8	16.4	-9.9	11.7	7.3
Decatur	1,326	-53.6	138.5	+11.6	540	-2.4	53.8[b]	-2.0	9.9[b]	5.8[b]
Galesburg	717	-36.8	32.2[c]	+17.1	161	+5.2	14.1	-6.0	10.3	7.1
Peoria	2,747	-66.5	204.6	+9.9	1,625	+10.2	161.8[b]	-0.9	6.8[b]	4.9[b]
Quincy	232	-80.7	41.9	+7.7	276	+8.2	18.2	-7.1	7.5	5.4
Springfield	4,800	-22.7	121.4	+16.6	2,290	+8.6	89.0	+1.6	6.8	5.4
SOUTHERN ILLINOIS										
East St. Louis	1,326	+513.9	24.8	+14.8	210	+20.7	22.6	0.0	9.4	9.6
Alton	356	-24.3	77.0	+2.8	157	+20.8	13.6	-10.5	11.1	5.9
Belleville	318	-76.6	28.3	+32.2	365	+6.4	17.3	-12.2	12.3	4.0
Carbondale-Murphysboro	885	+89.1	40.2	+26.8	366	+24.1	n.a.	n.a.	n.a.	n.a.

[a] Total for cities listed. [b] Data for standard metropolitan statistical area. [c] Includes immediately surrounding territory. [d] Includes East Moline.

[e] Data for Carbondale township. n.a. not available

Illinois Business Indexes

Item	April 1980	March 1980	February 1980	January 1980	April 1979
Leading indicator (1969=100)	83.7[a]	86.0[a]	88.7	90.7	93.8
Coincident indicator (1969=100)	118.8[a]	119.8[a]	124.4	132.8	154.6
Employment-manufacturing (in thousands)	1,200.4[a]	1,213.0	1,217.7	1,226.6	1,269.0
Average weekly hours-manufacturing	39.8[a]	40.3	40.6	40.9	39.4
Weekly earnings-manufacturing	310.44[a]	311.52	309.9	308.3	281.13
Layoff rate-Chicago	1.3	.90	.63	.69	.40
Ordinary life insurance sales (in millions)	$1,648	$1,632	$1,413	n.a.	$1,462
Retail sales (in millions)	n.a.	$3,721[a]	$3,438	$3,511	$3,802
Coal production (in thousands of tons)	5,664	5,499	5,469	5,641	4,948
Petroleum production (in thousands of barrels)	1,921	1,817	1,833	1,981	1,635
Vendor performance (percent)	42.4	42.5	40.8	54.6	72.6
Building permits (in thousands)					
Residential housing units	.94	1.27	1.16	0.95	4.3
Value of redidential housing	$849,642	$48,767	$42,379	$35,044	$178,204
Value of nonresidential housing					
Industrial buildings	$22,819	$15,127	$115,103	$26,212	$35,834
Office, banks, and professional buildings	$36,516	$49,133	$27,987	$29,490	$40,346
Stores and other mercantile buildings	$29,827	$14,574	$18,246	$18,713	$31,985
Other	$27,560	$24,072	$24,775	$25,264	$36,954
Consumer price index					
North Central US	n.a.	-	128.0	-	115.0
North Central/population more than 4,000,000	n.a.	-	129.6	-	115.7
North Central/population 385,000 to 1,250,000	n.a.	-	127.2	-	115.1
North Central/population 75,000 to 385,000	n.a.	-	126.4	-	114.0
North Central/population less than 75,000	n.a.	-	125.8	-	114.1
Chicago	240.1	235.5	232.7	230.3	208.7
St. Louis	n.a.	238.1	-	232.7	-
Farm prices	104	111	113	114	246
	1979:IV	1979:III	1979:II	1979:I	1978:IV
Personal income (in millions)	$114,130	$112,234	$108,287	$106,555	$103,024
Total labor and proprietors' income by place of work					
By type					
Wage and salary disbursements	$72,834	$72,281	$70,122	$69,622	$67,267
Other labor income	7,622	7,535	7,216	7,027	6,809
Proprietors' income	7,620	7,327	6,962	6,653	6,071
Farm	2,126	1,977	1,789	1,464	955
Nonfarm	5,493	5,350	5,172	5,189	5,116
By industry					
Farm	2,449	2,296	2,101	1,762	1,235
Nonfarm	85,627	84,846	82,199	81,540	78,912
Private	73,881	73,301	71,308	70,885	68,833
Ag. serv., for., fish., and other	207	204	197	187	180
Mining	980	917	919	881	880
Construction	4,929	4,794	4,918	5,097	4,639
Manufacturing	24,592	25,607	24,808	24,929	24,274
Nondurable goods	8,228	7,963	7,710	7,696	7,593
Durable goods	16,364	17,643	17,098	17,233	16,681
Transportation and public utilities	7,206	6,923	6,757	6,682	6,412
Wholesale trade	7,111	6,866	6,737	6,522	6,527
Retail trade	8,131	7,998	7,842	7,897	7,472
Finance, insurance, and real estate	6,031	5,787	5,394	5,097	5,095
Services	14,695	14,206	13,736	13,593	13,355
Government and government enterprises	11,746	11,546	10,891	10,655	10,079
Federal, civilian	1,926	1,864	1,832	1,816	1,776
Federal, military	552	513	515	505	507
State and local	9,269	9,169	8,544	8,334	7,796
Income by place of work					
Wage and salary disbursements	72,834	72,281	70,122	69,622	67,267
Farm	286	283	277	266	250
Ag. serv., for., fish., and other	130	128	122	116	111
Mining	750	703	707	680	680
Construction	4,032	3,907	4,004	4,120	3,721
Manufacturing	21,217	22,125	21,477	21,637	21,075
Nondurable goods	7,165	6,945	6,737	6,742	6,654
Durable goods	14,051	15,180	14,740	14,895	14,420
Transportation and public utilities	6,072	5,844	5,709	5,660	5,424
Wholesale trade	6,200	5,995	5,896	5,715	5,716
Retail trade	6,878	6,768	6,655	6,708	6,324
Finance, insurance, and real estate	4,767	4,555	4,253	4,010	3,989
Services	11,106	10,766	10,447	10,359	10,186
Government and government enterprise	11,397	11,206	10,575	10,351	9,792
Federal, civilian	1,836	1,778	1,749	1,735	1,697
Federal, military	552	513	515	505	507
State and local	9,008	8,914	8,311	8,111	7,588

Sources available upon request.

[a] preliminary. n.a. not available

Real Estate Market Performance: The Champaign County Case

THOMAS B. BRYAN AND PETER F. COLWELL

Is real estate really the hedge against inflation that people say it is? During the course of a year, do prices, marketing time, or other factors fluctuate so as to affect the timing of buyers and sellers? In order to answer these questions for a particular market, we have examined trends and seasonality in real estate market performance in Champaign County, Illinois.

Three price measures are utilized as indexes of market performance. These are selling price, real selling price, and list price. In order to determine whether real estate has been a hedge against inflation, it is necessary to compare selling prices (what properties are actually selling for) with an index of the general level of prices. The real selling price does just that. It corrects the selling price for inflation. In other words, it holds real purchasing power constant. Thus, the real selling price is a direct measure of the extent to which real estate has provided a hedge against inflation. A comparison of list or asking price with selling price provides a rough measure of the extent to which actual market performance falls short of sellers' expectations.

Besides these measures of price, other measures of market performance are considered. Two of these are the number of listings and the number of days on the market. The number of listings is the number of properties offered for sale and is thus an indicator of supply. Days on the market measures the interval between the time property is listed as being for sale and the time it is sold. Thus, days on the market is a measure of liquidity and may provide an indication of the direction in which selling price will move.

The raw data for all of these fundamental measures of market performance were made available by the local Multiple Listing Service (MLS). It is only through the cooperation of the MLS that a comprehensive analysis of the market was possible.

Two other data series are utilized in this paper: building permits and mortgage interest rates. The building permit data are from the Champaign and Urbana zoning commissions and are used as another indicator of supply. Mortgage interest rate data are from the Federal Home Loan Bank and is a factor in determining both supply and demand conditions in the real estate market.

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In the first part of this paper, there is an analysis of developments in the Champaign County real estate market over the past five years. More precisely, the time period considered extends from May of 1975 through May of 1980. This period includes both the recovery phase of the last recession and the initial phase of the current recession.

While real estate markets around the state and the nation may differ with respect to their mix of property types and degree of sensitivity to recession, there are important similarities. Real estate markets are similar with respect to their internal functioning and their sensitivity to certain external factors. The lagged supply responses to price changes and the sensitivity of real estate to changes in interest rates are examples of these similar internal and external factors, respectively. Thus an analysis of the Champaign County market, or any particular market, provides insights into real estate markets in general.

Still another way in which the Champaign County real estate market is like other real estate markets is that it consists of a large number of submarkets. While these submarkets are interrelated, the degree of interrelationship can be quite limited. Therefore, submarkets might exhibit different market performance from that found in the aggregate data. For this reason, in the second part of this paper we take a close look at a single submarket, the market for upper middleclass housing on the outskirts of the city of Champaign.

The Aggregate Market

It is erroneous to suppose that real estate prices move upward without interruption. As in other markets, real estate prices move up and down (see Chart 1). In fact, the average selling price fell in Champaign County during 1975 as the recession was ending. The years 1976 and 1977 were euphoric, with prices growing rapidly. The rate of price increase slowed in 1978. Since about September of 1979 average selling price has been essentially unchanged.

It is even more erroneous to suppose that real estate is a perfect inflation hedge year after year. The real selling price rose from a seasonally adjusted low in January of 1976 to a peak in March of 1978. Between these dates this inflation-adjusted price of real estate grew at just over a 20 percent average annual rate. But since March of 1978 real prices have decreased at a 9.6 percent annual rate.

List price was rising in 1975 when selling price was still falling, and it also began to level off in 1978, about a year prior to selling prices (see Chart 1). A property's list price is the price the owner is asking. List prices tend

Chart 1

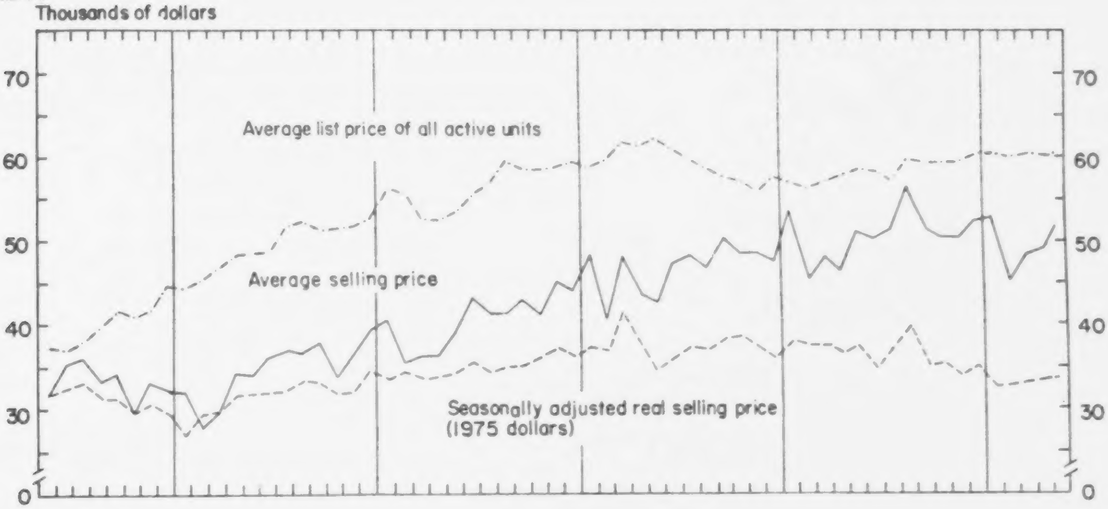


Chart 2

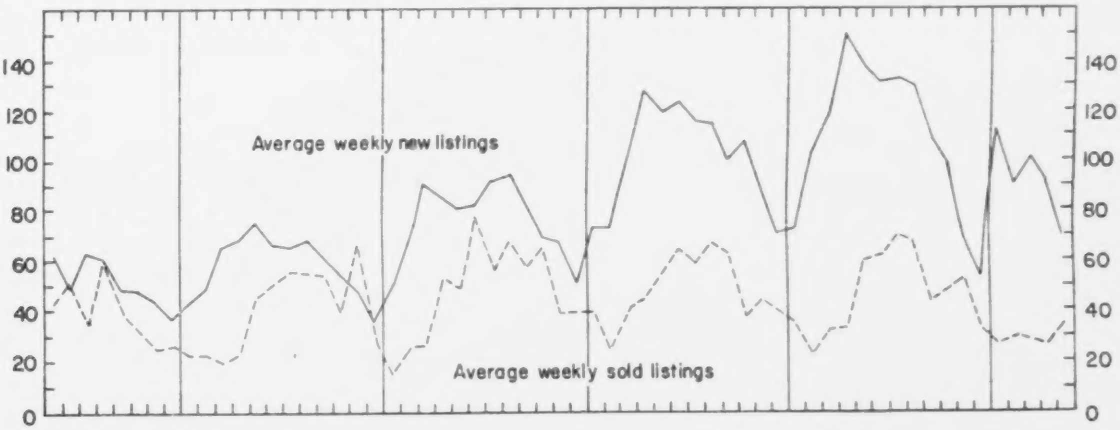


Chart 3

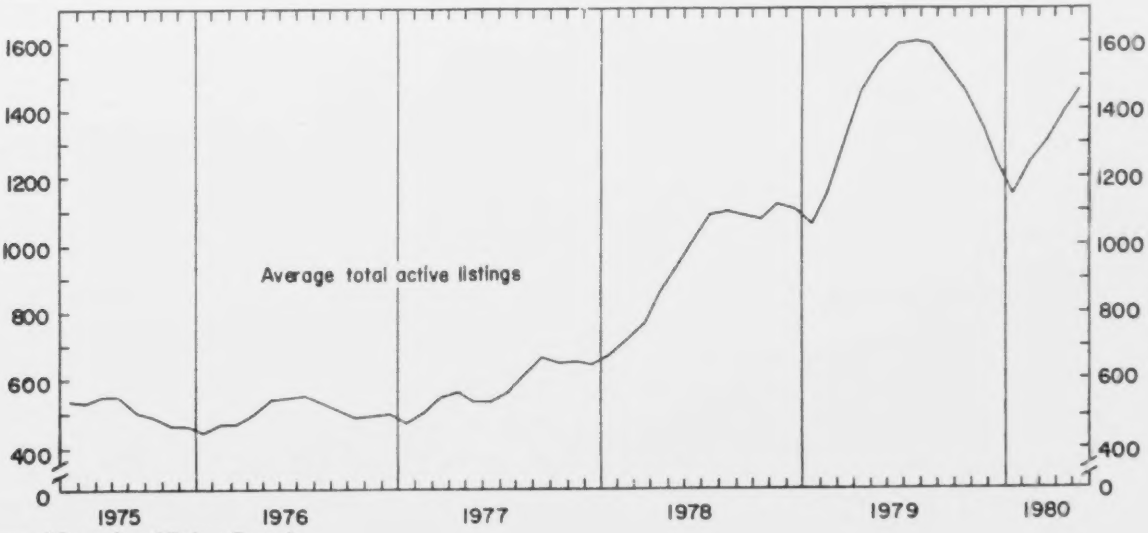


Chart 4

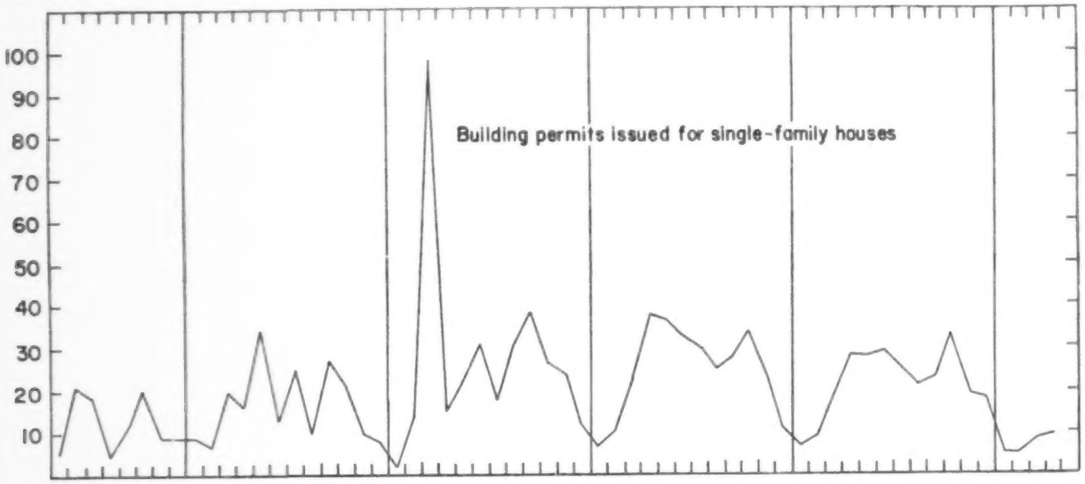


Chart 5

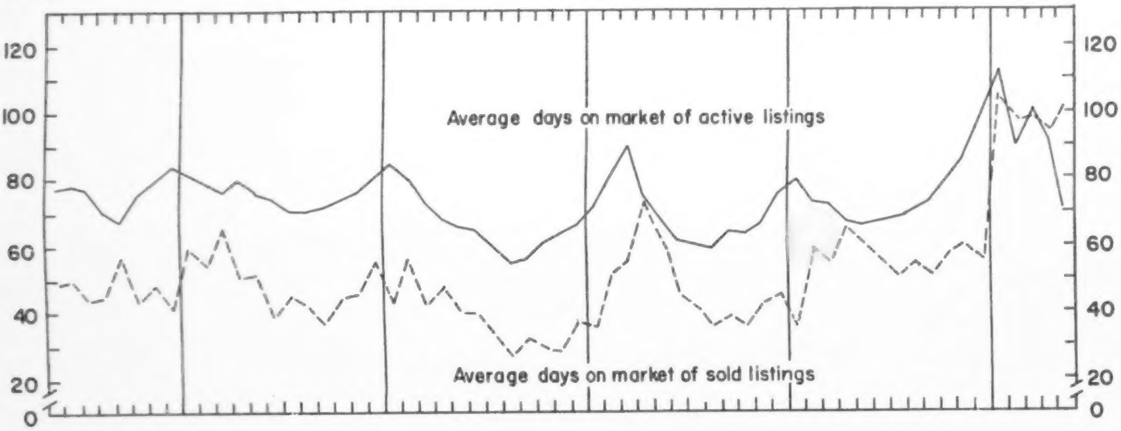
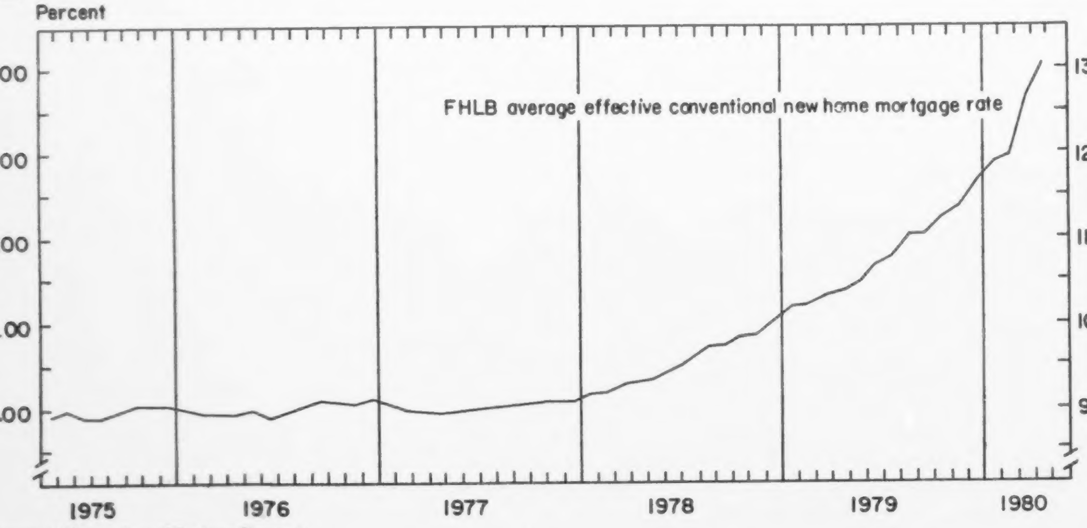


Chart 6



to reflect the expectations owners have. The data show that the list prices of properties on the market (that is, active) diverged from selling prices coming out of the recession, not to converge again until 1978. Between May of 1975 and May of 1978, list prices increased at an 18 percent annual rate. Since then, list prices have drifted downward at just over a 1 percent annual rate. This suggests that actual market performance was falling well short of sellers' expectations during the approximately 3 years of this divergence, and that there may be some adjustment process which eventually causes expectations to get back into line with actual market performance.

In order to develop some explanation for the price behavior found in the market, we examined additional market data, the most revealing of which is the number of listings. Listings are the contracts brokers (in this case members of the MLS) have with potential sellers. Chart 2 compares the listings sold with new listings, whereas Chart 3 looks at total listings active on the market.

The consistent level and seasonal pattern that sold listings assume year after year is striking (see Chart 2). Though the same seasonal pattern is recognizable with total listings, these listings have until recently grown quite steadily (see Chart 3). A widening gap has thus developed between the number of new and sold listings. This gap has in turn contributed to the overall growth in total listings.

The number of days on the market of sold and active listings (see Chart 5) is an inaccurate indicator of liquidity in the market. This is especially true in a down market when a number of properties may be listed more than once before selling. Data relating to days on the market overstate liquidity by including only the time on the market of the most recent listing contract. Nevertheless, days on the market of sold listings rose a bit in early 1978 and late 1979 and rose quite a lot in early 1980. These movements correspond roughly to earlier movements in the generally more revealing listing data.

A combination of internal and external factors have led to a growth in listings and the relatively poor price performance since 1978. One factor relates to previous selling price movements while another is embodied in nominal interest rate fluctuations. Real prices appear to have their largest effect on the builder/seller while the growth in nominal interest rates has altered the decisions of potential buyers.

Internal Factors

Movements in prices and quantities in the real estate market create the conditions for opposite movements. An initial expansion sets the stage for a later downturn.

The rise in total listings in 1977 can be attributed largely to the increase in building permits issued earlier in the year (see Chart 4). Thus, most of the rise in 1977 total listings can be explained by new housing. Certainly, a portion of the continued rise in total listings through 1978 and 1979 has a similar explanation. Moreover, some of the 1980 decline in new listings may be a consequence of the depressed state of new housing construction. As can be seen by the 1980 building permit issuance, the implied construction of new housing has all but ceased. But what caused these fluctuations in building activity?

Builders were spurred on by their perception that profit opportunities were increasing. That is, they saw selling prices growing more rapidly than their costs. Real selling price may be used as an indicator of profitability, and real prices were increasing rapidly from January 1976 through March 1978. Building apparently began to boom about a year after the price explosion, and symmetrically, builders were unable and/or unwilling to cut back rapidly as real prices began to decline. They were unable because it takes time to recognize changes in profitability. Also, building projects take many months to complete. Once begun, the carrying costs are so oppressive that projects are usually completed and put on the market. Builders are unwilling to cut back sharply because they are concerned for the well-being of their crews during a slump and are concerned about their access to skilled personnel when the slump is over. Thus, there may be something akin to a hog cycle operating in the housing market.

Higher real prices mean production plans are revised upward. As the new units come on the market they force prices lower. Lower real prices mean that production plans are lowered. As the previously produced units are gradually absorbed, prices rise once again. So there may be an element to price fluctuations and listing fluctuations which is internal to the particular market.

External Factors

Local economic activity including real estate activity is relatively insulated from national cyclical fluctuations. Local stability is fostered by the dominance of public sector employment in Champaign County with the University of Illinois and Chanute AFB being the prime examples. Even so, the region is not completely exempt from shocks arising in the national credit market. Local real estate activity is sensitive to interest rate movements in the general mortgage market.

Mortgage interest rates are based on contracts written in nominal terms. That is, they call for certain dollar payments in the future regardless of the course of inflation and the worth of the payments in real terms. As credit market participants expect higher rates of inflation, the suppliers of funds require higher nominal interest rates and demanders are increasingly willing to pay them. That is, both sides of the market recognize that higher expected inflation rates mean that it takes higher nominal interest rates to make the real cost of credit constant.

Interest rates on mortgages were relatively stable through 1977 (see Chart 6). Rates then began rising and continued their rise through April of 1980. It is reasonable to attribute much of the increase in interest rates in 1978–79 and early 1980 to increases in the expected rate of inflation. Perhaps the real rate of interest did not rise at all during this period. Indeed, real interest rates may have even declined slightly during some part of the period. In any event, it is tempting to think that with a relatively constant real cost of borrowing, the mortgage market and the real estate market, in turn, would not be adversely affected. But this is not the case.

Nominal interest rates matter. The rise in nominal rates may not have changed the real purchasing power of mortgage payments. However, the rise in nominal rates was associated with a substantial alteration in the time path of real mortgage payments. As long as mortgage contracts are written so as to call for level mortgage payments, inflation will mean that the real purchasing power or mortgage payments declines through time. As rates of inflation and nominal interest rates rise, there is an increase in real terms of initial mortgage payments relative to the later payments. This time-path of real payments runs counter to many families' ability to pay. They cannot initially meet the lenders' requirements. Furthermore, at some point borrowers themselves are unwilling to pay such big chunks of their paychecks on their mortgages. Similarly, income properties have difficulty with institutional finance, because their before-tax cash flow initially will approach zero. That is, there is no safety cushion for satisfying debt service out of the properties' current income. So nominal rates matter because of the increased difficulty in making initial payments as nominal rates rise, even if real rates are constant.

The most straightforward way to deal with this problem is to utilize graduated payment mortgages. These mortgages call for increasing nominal mortgage payments, so the real purchasing power of mortgage payments can be made relatively stable.

Nominal rates also matter as they affect the institutions that traditionally finance real estate. Financial institutions have suffered from either an inability to attract savings funds or from increases in their average interest costs relative to their return on mortgages. Prior to the recent period of high interest rates, intermediaries experienced disintermediation. That is, funds moved out of S&Ls and commercial banks with increasing nominal rates, because investors shifted their funds to market instruments. Disintermediation was greatly reduced during this last episode of rate increases. Deposit institutions were permitted to offer 6-month (or longer) accounts on which competitive rates were paid. Even so, with short-term rates recently above long-term rates, some mortgage lenders were afraid to lend long, even if they had the funds. The solution to the remaining problems in this context is to allow S&Ls and other financial intermediaries to offer competitive rates to even the smallest savers and to bring about stability so that short-run and long-run rates return to their traditional relationship.

The disturbances in real estate prices and listings since early 1978 can probably be attributed largely to the experience with interest rates. That is, nominal mortgage rates began climbing in 1978 and did not peak until April of 1980. It has been difficult for the real estate market to adjust to changes of such historic magnitudes.

A Qualification

The performance of any given submarket may not reflect aggregate real estate market performance. It is necessary to recognize that *average* price and other market phenomena may be due to changes in the composition of the average rather than to similar phenomena in the submarkets. Another way of saying this is that the mix of properties offered for sale and actually selling may be changing. Thus if the recent credit crunch hit income properties before it hit single-family housing, the decline in real selling prices may be explained, at least in part, by higher-priced income properties being a smaller proportion of sales. Although this cautionary note might give home sellers some cause for hope, it offers no comfort to the brokerage industry.

A Submarket

A detailed look at a single submarket is refreshingly straightforward. The particular submarket selected is the upper middleclass single-family housing market just beyond the outskirts of the city of Champaign. All three neighborhoods leapfrogged over agricultural land rather than having been developed as contiguous extensions of previously developed residential neighborhoods.

The prices indexes shown in Charts 7 and 8 are quite refined in contrast to the price data on the aggregate real estate market in Champaign County. These indexes not only refer to a submarket defined in terms of significant locational factors, property type, and value range; they also were constructed so as to hold constant the effects of a number of important property characteristics such as size of living area, location on a lake or golf course, and so on.

The time period for the submarket data is roughly similar to the period over which the aggregate market was considered. There is enough overlap in these two data sets to illustrate differences and similarities between the price performance of the submarket and that of the aggregate real estate market.

The submarket recovery from the 1974–75 recession is earlier than the aggregate market recovery, and the submarket has experienced more consistent price increases since (see Chart 7). With the possible exception of 1978, the submarket does not exhibit the slowdown in price increases found in the aggregate data. Real prices did decline in 1978, but rebounded in 1979, increasing at nearly a 31 percent annual rate in nominal terms or a 17 percent annual rate in real terms. This is a significant departure from the aggregate market's performance. It is probable that the submarket price performance has been substantially less spectacular since August of 1979.

There is apparently a substantial seasonal pattern of prices in the submarket. Chart 8 shows some similarities with the aggregate data that suggest that aspects of the aggregate seasonal pattern are not simply due to a changing mix of properties sold over the course of a year. For example, both data series show price increases

Chart 7
(January 1, 1974 = 100)

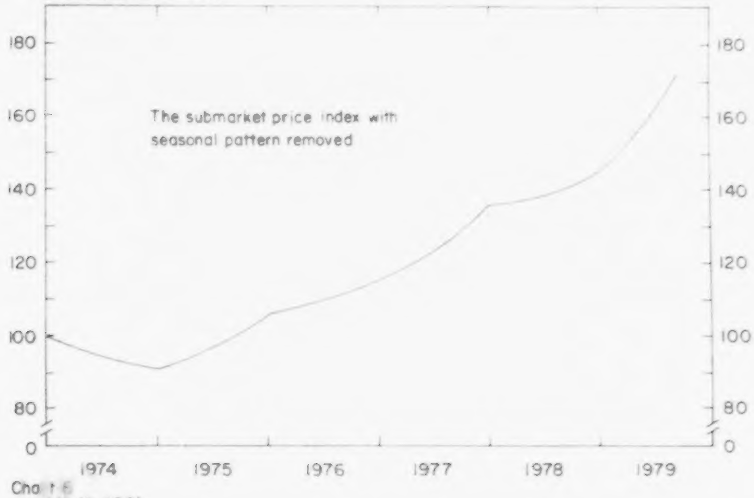
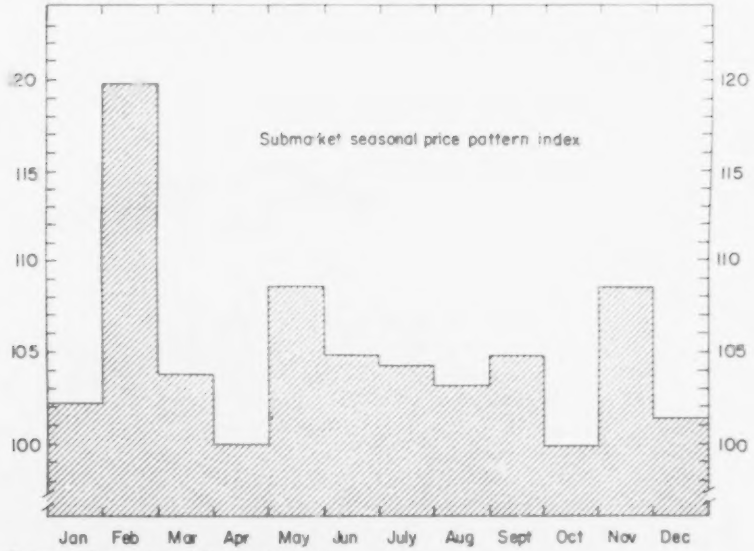


Chart 6
(April = 100)



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in May and November as well as a rise during the summer months.

There is, however, one stark difference in the two data series with regard to seasonality. The submarket shows a surprisingly large increase in February. However, the aggregate data show a substantial decline in price during February. The dip in aggregate real estate prices in February may very well be accounted for by substantial changes in the mix of properties sold. However, the price increase during February in the submarket has no easy explanation. It is possible that this strange result is due to a quirk in the data. It could be explained if February sales were systematically of high quality and if we were unable to measure the special dimensions of quality which these properties have.

We did not expect to find such a strong seasonal price pattern. Generally, commodities having strong seasonal patterns have a seasonal production pattern and some quality which degrades rapidly. That is, the commodity is perishable. Some agricultural commodities as well as high-style clothes may fit this description. But neither style changes nor physical decay characterize housing within the time-frame of one year. Thus on an intuitive basis housing does not seem to be a candidate for a strong seasonal price pattern.

It is difficult to develop an explanation for the pattern found in the submarket data. With both the supply of houses for sale and the demand for houses generally moving together over the course of a year, the seasonal price pattern is theoretically indeterminate. That is, when demand is increasing, supply is also increasing. Thus, although it is clear that transactions should have a strong seasonal pattern, it is not obvious that seasonal demand shifts are systematically more or less than seasonal supply

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shifts, thereby resulting in seasonal price effects. One example of this kind of differential shifting of demand and supply and a possible explanation for the October low is the seasonal pattern of new houses coming on the market. For obvious reasons, builders like to finish most of their year's production toward the end of the summer. This seasonal increase in supply is probably not matched by an equally large increase in demand. Therefore, price might be expected to drop somewhat in the early fall.

But just how large can one rationally expect seasonal fluctuations to be? If it is known that one particular season produces substantially higher prices, those suppliers and demanders who could adjust would do so. Demand would shift away from and supply would shift toward the high-price season. The effect of these adjustments would be to tend toward a smaller variation in prices across seasons. Of course, seasonal price differences may persist if they do not exceed carrying costs of holding property from one season to another.

The fact that large seasonal price differences do exist and persist requires one of two possible explanations. First, it may be that these fluctuations were heretofore unknown and the cost of discovering them appeared prohibitive to market participants. Alternatively, it might be that the market is not efficient. If this second possibility were to be the case, it would be a bitter pill to swallow. But because the real estate market consists of such heterogeneous commodities, it is believable that market participants would miss systematic price fluctuations which are masked by so many other factors which vary from one transaction to another. We discovered the submarket seasonality only after the application of an elaborate econometric technique that would be prohibitively costly for any single market participant to undertake. If the first explanation is correct, by the way, having revealed the seasonal pattern should lead to its reduction.

Conclusion

The aggregate market showed mixed real price performance over the last half decade. It proved to be an effective hedge against inflation only during the middle years of the study period. The submarket, on the other hand, exhibited more pronounced and more consistent real price increases over a similar period.

The poor price performance and the rise in listings in the aggregate real estate market from 1978 to the present can be attributed to internal and external factors. Internal factors, comparable with the well-known hog cycle, led to a downturn as a direct result of the previous expansion. Almost at the same time, nominal interest rates began rising. This is the primary external factor responsible for the market performance since the beginning of 1978.

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Rent Control

PETER F. COLWELL AND JOAN KRUEGER

Interest in rent control has been growing in Illinois and around the country. In 1977 rent control was rejected for Chicago by a committee appointed by Mayor Daley. In 1979 a bill making it possible for Chicago to have a so-called Fair Rent Commission failed to pass the state legislature. Recently, an ordinance providing for a Fair Rent Commission was before the Chicago City Council, but it was defeated in June of this year. All this activity indicates that there is a great deal of interest in some kind of rent control in Illinois or, at least, in Chicago. The fact that these rent control initiatives have been rejected makes it seem unlikely that a rent control ordinance will be found in Illinois any time soon. But support for rent control does appear to be growing. For example, Mayor Byrne was against the ordinance that was defeated in June, but she is in favor of some type of Fair Rent Commission.

In this paper we examine the historical and analytical background of rent control. First, rent control is defined in its many forms. Next, there is a review of the history of rent control in this country, including the recent flurry of activity. The path of rent over the last three decades is shown to offer little in the way of an explanation for this recent activity. Both conventional and unconventional arguments for and against rent control are analyzed. Two criteria used in this paper to judge rent control are the efficiency with which housing resources are allocated in the short and long run and the fairness with which landlords and tenants are treated.

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Characteristics of Rent Control

Rent control involves placing a ceiling on gross income from rental housing. Generally, it is local government which establishes rent control under the authority of its police power. This authority differs from state to state. In some states, enabling legislation must first be passed by the state legislature. This has been done in several states, including Massachusetts, Florida, and Maine. Other states have preempted local governments from imposing rent control.

There are a number of variations on the rent control theme. Administration of a rent control ordinance is usually by a board appointed by the city council. The board may include representative landlords and tenants. Following the imposition of rent control there have been several instances in which there was a rent rollback to eliminate any rent increases that might have occurred in the expectation of rent control. Subsequent increases in rent would be allowable only at the discretion of the rent control board.

Usually, the local ordinance allows some cost increases to be passed through to tenants. However, these provisions are often quite rigid, allowing a fixed percentage increase or some proportion of the increase in the Consumer Price Index (CPI). In practice, such adjustments usually do not fully compensate the landlord for cost increases. The board might grant rent increases to all controlled units in view of a general increase in operating and maintenance expenses. In some communities landlords can also petition the board for an additional increase required to meet some special hardship. Some rent control boards also have the authority to reduce the rent if the landlord has failed to provide normal and adequate repair and maintenance. If deficiencies do exist in repair and maintenance, the board might make a rent increase contingent on the elimination of these deficiencies. Of course, this kind of rigidity makes it very hard for the landlord to adjust to the reduced profitability.

Unconscionability and Contracts of Adhesion: Problems *By Mark Roszkowski* / *Page 9*

Frequently certain categories of housing are exempt from control, such as rental units constructed after a specified date and luxury apartments (defined in the ordinance as units with rents higher than a certain amount). It is also common to find situations in which only limited categories, such as mobile homes, are covered by rent control. Occasionally, a rent control ordinance allows for the decontrol of vacated units. In this situation, it is to the landlord's advantage to have a high turnover of tenants. However, this advantage is usually anticipated, so tenants are protected by the rent control ordinance from eviction and harrassment. Usually a landlord will not be able to evict a tenant except for specified situations and after applying to the rent control board for permission. The landlord may find it difficult to affect the quality of his building by selecting out disagreeable (for example, noisy, untidy) tenants.

The latest euphemism for rent control is a fair rent commission. These commissions have the power to arbitrate rent increases contested by the tenant. The commissions are composed of both tenants and landlords. They can nullify rent increases that they believe to be unfair. In 1972 Connecticut passed a law enabling cities to set up fair rent commissions. Hartford and other municipalities have done so. Tenant groups have expressed interest in the establishment of a fair rent commission in Chicago.

Some communities are instituting rent mediation, arbitration, or conciliation boards. Usually the determinations of such boards are advisory in nature and compliance is voluntary. Of course, landlord groups still view such activities as an intrusion and a harbinger of compulsory regulation to come.

History of Rent Control

Since the mid-1950s, rent control has been limited to a few municipalities, but now it appears that such control may be on its way back. Rent control was first introduced on a limited basis during World War I. It was first imposed on the national level during World War II as part of the wartime price control system. Although the federal controls were lifted in 1952, rent controls were extended by several state and local laws. By the mid-1950s, only New York City and surrounding areas had rent controls. These have persisted, although in an altered form, to the present. Nationwide rent control was reestablished between 1971 and 1973 as part of the general wage and price controls. From 1973 to mid-1978, a few Eastern localities imposed rent controls: Washington, D.C., Boston and a few other cities in Massachusetts, and about 20 cities in New Jersey including Atlantic City. Valdez, Alaska, and two other Alaskan cities had rent control until the pipeline was completed in 1977.

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Now there are signs of a resurgence of rent control around the country. The passage of Proposition 13 in California in June 1978 spurred the rent control activity in that state. The tenants in California were angered by their perception that most landlords did not share the tax savings from Proposition 13.

At the present time, 27 communities in California have passed rent control. Almost the same number (actually 24) of communities have rejected rent control initiatives. Another 20 or so communities in New Jersey have imposed control in the last year, and approximately a half dozen communities rejected it during the same period. A number of communities in the state of New York have recently opted for state-recommended rental limits referred to as ETPA (Emergency Tenant Protection Act). Elsewhere around the country rent control activity has been more scattered. For example, control has been imposed in one city in New Hampshire, a township in Michigan, Baltimore and Montgomery County in Maryland, and three cities in Florida.

Rent control activity has recently declined in Massachusetts. Since its introduction in five cities in the early 1970s, two have dropped it (one in 1979), and no others have enacted rent control. Massachusetts is the only real example which is counter to the movement toward more rent control, although several other states and localities have considered and rejected it recently.

The Recent History of Rent

The most recent clamor for rent control comes at a time when rent in real terms, that is, in constant dollars, has been falling. Real rent refers to rent which has been corrected for the rate of inflation. The charts show for each of five cities and the entire nation how real rent has varied over the last 30 years. Rent has been adjusted for the rate of inflation by using the CPI. The rent indexes, as well as the CPI, have 1967 as the base year. Thus, all the real rent indexes in the charts equal 100 in 1967.

The fact that each of these cities has an index does not mean that the rent levels were the same in all these cities in 1967. Suppose that City A has higher rent than City B in 1967. If real rent rises in City B but falls in City A during the next year, the 1968 index in City A would be below 100, and the 1968 index in City B would be above 100. Yet it would still be possible for real rent to remain higher in City A than in City B. Thus, the charts cannot be used to judge how high rent was in one city relative to another city or to the nation. It is only possible to compare the nation (a city) at one time with the nation (the same city) at another time.

Generally speaking, real rent first rose and then fell over the 30-year period studied. Changes in real rent in Chicago and St. Louis closely paralleled the national

Chart 1

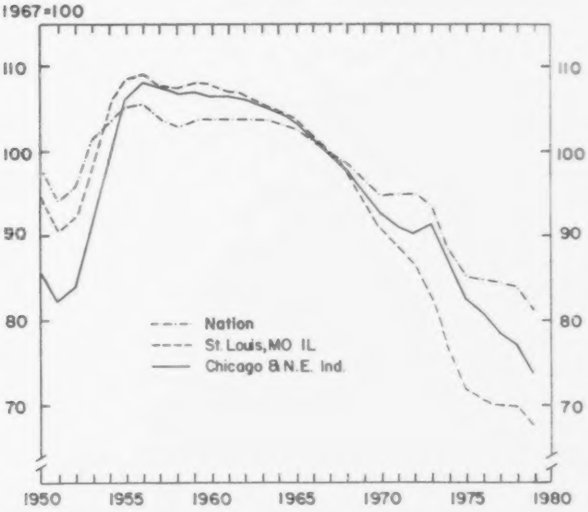
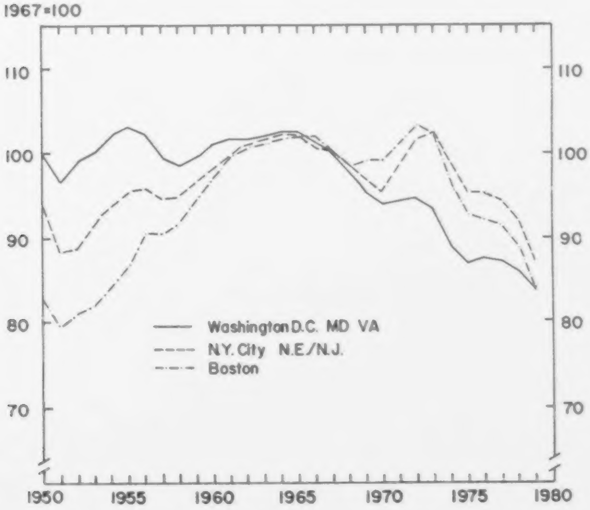


Chart 2



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experience, peaking in 1956 (see Chart 1). While real rent in the nation has since declined at about a 1.1 percent average annual rate, Chicago and St. Louis have experienced more rapid declines. In Chicago, real rent has declined by almost 1.7 percent annually since 1956, whereas the annual decline has been 2.1 percent in St. Louis.

Although there have been some differences in the rent histories of US cities, the inescapable conclusion is that rent behavior has been very similar across cities since the last recession. New York has had a real rent history somewhat unlike that of the nation and the two cities in Chart 1 but very similar to Boston's (see Chart 2). Real rents peaked in New York and Boston in 1964 and again around 1972 and 1973. Since 1973, real rents have fallen at a 2.25 percent annual rate in New York and a 3.2 percent rate in Boston.

Washington, D.C. has had a somewhat different history of real rent movements (see Chart 2). It has a peak in 1955 just one year before real rent peaked in the nation, Chicago, and St. Louis. It had another peak in 1964–65 like New York and Boston. Finally, Washington had a minipeak in 1972, like the nation.

Despite the differences in the cities shown in the charts, all but Boston were at 30-year lows in 1979. If the argument for rent control is that landlords exert some kind of power that allows them to exploit tenants, they are presently less successful in this exploitation than at any time in the last 30 years.

Conventional Opinion

Both proponents and opponents of rent control offer a wide variety of arguments. In general, the proponents are interested in reducing tenants' housing costs and are willing to do so at the expense of landlords — who, proponents believe, would otherwise charge excessive and unfair rent or, in more colorful language, would engage in "rent gouging." Proponents feel that landlords will charge excessive rents, taking advantage of the tenant at a time when there is a small supply of housing available to low- and moderate-income families. Proponents label this situation a shortage and call for relief in the form of rent control.

Proponents also argue that rent control leads to an increase, or at least no change, in maintenance and repair in the controlled units. They feel that landlords have an incentive to maintain the property, as rent control boards have the authority to refuse a rent increase, perhaps even order a decrease, if rental property is not adequately maintained.

Opponents of rent control usually stress its impact on the quality and quantity of rental housing available. They say that rent control causes a decline in operation and maintenance expenditures and leads to a reduction in new construction, abandonment of existing housing, and conversion of rental housing to condominiums. Giving the rent control board authority to deny rent increases until repairs are made is confiscatory and will only accelerate abandonments. Thus, opponents of rent control argue that controls lead to a shortage of housing while proponents contend that rent control is the solution to a housing shortage.

In economics, a shortage does not refer to a small amount of housing nor does it refer to a deficiency of housing as measured against some standard such as the previous supply relative to the population. Rather, there is a shortage when tenants are willing and able to purchase more housing services than landlords are willing and able to supply *at existing prices.* While this is a proper way to view a shortage in a market, a shortage may also be characterized differently. In a shortage situation, the amount that tenants are willing and able to pay for the quantity of rental housing supplied exceeds the amount that landlords are receiving. So prices tend to be bid up by tenants who are frustrated by the shortage. The rise in price tends to eliminate the shortage since tenants are willing to buy fewer housing services and landlords are willing to supply more at higher prices. But rent control can keep the adjustment from occurring and cause the shortage to persist. Thus, rent control causes shortages; by no stretch of the imagination can rent control be a coherent response to a shortage, as it is defined by economists.

The Landlord

To maintain profitability in the face of rent controls, the landlord tends to reduce housing services. Such services are the abstract things that tenants want from housing: shelter, comfort, security, and prestige.

Rent may be thought of as the price of housing services multiplied by the quantity and quality of housing services associated with an apartment. A landlord faced with rising costs of the services and a fixed rent might decrease the supply of services to the tenant. In concrete terms, the landlord may let the doorman go, lower the thermostats on the water heater and furnace, reduce the frequency of trash collection and cleaning, and finally cut back on repairs. Looked at in this way, actions to maintain profitability under rent controls actually serve to raise the price of housing services.

This scenario need not occur if rent control is flexible and sensitive to cost increases. In this unlikely event, rent control would not cause a reduction from previous levels of maintenance. However, if the rent control is relevant, that is, if it brings about below-market rents, it is also very likely to cause levels of operation and maintenance that are less than what would exist in the absence of rent control. This does not mean that abandonment is a likely result of rent control. Consider cities such as Detroit and Chicago which have experienced widespread abandonments without rent control. There are examples of cities, generally smaller ones, that have had rent control but have not experienced any substantial abandonment or lesser disinvestment problems.

If the administration of rent control is insensitive to cost increases, landlords are induced to take drastic action. Landlords who are faced with operating losses might choose to abandon the building, or, if possible, convert to a condominium. If rent control persists, both of these measures will lead to a decrease in the rental housing stock and exacerbate the shortage of rental housing. The empirical connection between rent control and blight was first made in a study of a number of metropolitan areas in the late 1950s. New York was the only area with rent control at the time, and it was also the only area showing an increase in the number of substandard units.

In the absence of rent control, rent increases well in excess of increases in costs are not unknown. Why does this occur? Does it represent the market functioning in a legitimate fashion? This occurs in response to some kind of external shock such as a rapid increase in population, a loss of a large part of the housing stock in a natural disaster, or the discovery of a more profitable use for rental housing, for example, as condominiums.

Rent increases serve to allocate housing to people according to their ability and willingness to pay for it. At this stage of the argument, proponents of rent control and even some fair-weather opponents will say that the system is unfair and rent control is necessary to deal with "truly aberrant economic conditions." But setting the question of fairness aside for the moment, large increases in rent do serve a number of society's interests.

A dramatic increase in rent causes housing space to be used more intensively. Some households will double up. Rooms will be rented in otherwise owner-occupied houses. This is the very kind of efficient short-run response to the external shocks that one would want. However, there is no reason to expect this behavior in a rent control situation.

Most opponents of rent control correctly see increased profitability of rental housing as providing a stimulus to owners of existing rental housing and developers of new housing. It is expected that the increased profitability will cause the owners of existing housing to maintain it more carefully and perhaps even rehabilitate it so as to be able to receive the higher net income over a longer period of time. Developers of new housing will increase the rate of new construction so as to capture a share of the increased profit. The resulting increase in the housing stock is an efficient long-run response to the shocks which gave rise to the rent increase. Again, there is no reason to expect this response from rent control.

Still the question remains, is it fair for landlords to reap windfall profits? The answer is yes and no. A few landlords will have foreseen the possibility of windfall profits and acquired property to meet the anticipated future demand (for example, property outside a flood plain or a building resistant to earthquake damage). The interests of society are served by rewarding that kind of foresight and risk-taking by allowing the small probability of large gain. However, many landlords who receive windfall profits are in that position by just dumb luck. Rewarding them is not really fair nor is it particularly useful to society, but it is necessary. This is because there is no way to distinguish pure luck from foresight with luck. So the small possibility of windfall profits serves as an incentive to entrepreneurs to anticipate future shocks to the market. But windfall profits are unquestionably gratuitous for many landlords. Someone concerned with the inequity here might be consoled by the thought that the market acts symmetrically. It also deals out windfall losses to some landlords who have made mistakes and deserve it and others who are just unlucky. Ultimately, the fairness of windfall profits to landlords must be compared with their lot under rent control.

Despite the fact that rent control legislation generally calls for a fair return for landlords, this is not what occurs. There is a profound lack of reliable data on which to base comparisons of expenses and net operating income, let alone after-tax returns. Costs vary greatly across rental properties according to tenant characteristics, neighborhood, age of building, number of units in building, height of building, and so on. No rent control administrator, or anyone else, has a good quantitative grasp of these relationships. Futhermore, a simple rate of return criterion likely to be selected by rent controllers, such as the ratio of net operating income to assessed value, will be totally inappropriate. This is not only because measures such as net operating income and assessed value are unreliable but also because the criterion is a hopelessly defective measure of rate of return. As an alternative to making decisions about fairness, ceiling rents are sometimes tied to a weighted average of prices such as the Consumer Price Index. Of course, this does nothing to improve the sensitivity of rent control to the costs facing landlords. Thus, arbitrary and essentially unfair elements are necessarily prominent in centralized decisions concerning ceiling rents.

The Tenant

Contrary to the beliefs of rent control proponents, rent control does not limit the housing costs of tenants. Although rent control limits the amount of rent the tenant pays the landlord, rent is not the only housing cost that the tenant must face. If rent control leads to a shortage of housing, these other costs increase. Rent control that is relevant, in the sense of holding rent below market levels, always creates a shortage. Thus, relevant rent control causes these other costs to rise. To a large extent, these extra costs borne by tenants relate to the time and effort involved in searching for an apartment. With a substantial shortage, search costs will be large. The *Wall Street Journal* of 2 December 1970 reported that "a married woman in her late 30's pursued her goal — a five-room place on Manhattan's fashionable Upper East Side for under $200 a month — seven days a week for 18 months. Fnally, she found such an apartment."

One reason that search costs are so high under rent control is that vacancies occur less frequently. Tenants who might otherwise like to move within the rent-controlled market, perhaps to reduce their costs of commuting to work, want to avoid the search costs associated with such a move. The rent differential makes tenants reluctant to move outside the rent-controlled area. Of course, deaths create vacancies at the same rate with and without rent control. This fact is not ignored by searchers for rent-controlled apartments. The same *Wall Street Journal* article reports the practice of keeping "track of obituaries to divine what deaths are creating rent-control vacancies." That paper also reports "a New York public relations man who lives in a rent-controlled apartment building recently learned of the death of a neighbor living in a bigger apartment. 'I was on the phone to the landlord within two hours after that lady died,' he says, 'and I was too late. Someone else had already taken her place!' "

Besides increased search costs, the loss of mobility is another important source of costs arising from rent control. The loss of mobility can affect commutation costs, job choice, and even cause unemployment. It is common to keep a job that pays less or is less pleasant rather than moving out of a rent-controlled apartment. Of course, not all tenants are adversely affected by rent control. The biggest winners are those tenants who have apartments prior to the imposition of rent control and who have very little need to move for a long period thereafter. Of course, even those who go through a lengthy search may be minor winners if they have no need to move for a long period of time. Such households would not experience much change in household size, income, employment, or other characteristics that ordinarily occasion moves. Some households are big winners because they do not need to search or do not need to search very much. Most people in this category know somebody. Pull gets them an apartment. But there are also people who enter the search process without pull and just luck out. Of course, the gains for this group must be balanced against the losses of those who have terrible luck.

One of the more interesting aspects of trying to identify the winners from rent control is that the winners do not systematically fall in the lower end of the income distribution. Rent control is ineffective as a device to subsidize the poor.

The question of fairness continues. Is rent control with its allocation by search and waiting fairer to tenants than market allocations? It is certainly not obvious that the ability to search for housing is distributed with more fairness than the ability to pay rent. What makes the rent control allocation even less desirable is that rent-controlled landlords may select tenants according to criteria which seem even less fair than first come-first served. For example, if landlords cannot select tenants on the basis of rent, they may try to influence costs by their selection. To do this, they might discriminate against households with children or require prospective tenants to have a recommendation from current satisfactory tenants or from the landlord's business or social contacts. But this does not begin to describe the worst of nonrent allocation. Shortages and concomitant waiting lists facilitate illegal discrimination, such as discrimination against blacks. It is this sort of problem which caused the Palo Alto-Stanford NAACP and the Berkeley Black Council to oppose rent control initiatives in their respective communities.

Black Markets

Throughout this paper, it has been assumed that rent control effectively controls rent. It is not surprising that, in practice, rent control is evaded to varying degrees. Key money, a payment a new tenant makes to a landlord, is a common device used to evade rent control. A great deal of search activity may give rise to an apartment-finding industry which can facilitate giving kickbacks, indirect key money, to landlords. Lastly, gifts of cash to building superintendents around Christmas time may be thinly veiled payments for repairs and maintenance during the year. Generally, black markets for housing can and do arise when conventional markets are prevented from adjusting. To the extent that this is the case, the evasion of rent control is less efficient than allowing conventional markets to function.

Conclusions

There has been a burgeoning interest in rent control centered in California, New Jersey, and New York. Yet in real terms, the cost of rent around the country is probably at its lowest point in decades. The proponents of rent control argue that it is a response to shortages and is fairer to tenants than the market, while it also provides a fair return to landlords. But instead of being a coherent response to shortages, rent control is the cause of persistent shortages.

In the short run, the market response to increased demand relative to supply is to coax more intensive use from existing housing stocks via higher prices. In the long run, the market responds by increasing the stock of housing. Rent control interferes with both of these efficient responses.

Allocations of housing under rent control are less fair to tenants than allocations by way of uncontrolled rents. Rent control does not, in fact, control housing costs. The most significant costs which rent control generates are search costs and costs due to immobility. Nonrent criteria for allocating housing do not appear to favor the poor. While it may be argued that people in distress need help in paying their rent and purchasing other goods and services, rent control is an inefficient means of providing that help.

The motivation behind the desire to impose rent control, or general price and wage controls, is understandable. As long as relative prices do not change, most people do not think about the rationing function of markets. But when changes in relative prices force us to change our consumption patterns, we become much more aware of this rationing. These changes are often unpleasant and bewildering. Price controls provide an illusion that the political process can control the myriad details of our economic environment. Those who do not understand a dynamic economy's need to adjust rapidly to changing conditions, and the functions the market performs in meeting this need, find comfort in the illusion.

Illinois Business Indexes

Item	May 1980	April 1980	March 1980	February 1980	May 1979
Leading indicator (1969=100)[a]	n.a.	83.7[a]	86.0[a]	88.7	93.6
Coincident indicator (1969=100)	n.a.	118.8[a]	119.8[a]	124.4	159.7
Employment - manufacturing (in thousands)	n.a.	1,200.4	1,213.0	1,217.7	1,244.7
Average weekly hours - manufacturing	n.a.	39.8	40.3	40.6	40.6
Weekly earnings - manufacturing	n.a.	$310.[illegible]	$311.52	$309.9	$293.2
Layoff rate - Chicago	n.a.	1.3	0.9	0.6	0.5
Ordinary life insurance sales (in millions)	$1,581	$1,648	$1,632	$1,413	$1,548
Retail sales (in millions)	n.a.	$3,724	$3,766	$3,438	$4,090
Coal production (in thousand tons)	5,585	5,664	5,499	5,469	5,582
Petroleum production (in thousand barrels)	1,980	1,921	1,817	1,833	1,945
Vendor performance (percent)	30.2	42.4	42.5	40.8	76.0
Building permits (in thousands)					
Residential housing units	1.15	.94	1.27	1.16	6.10
Value of residential housing	$52,525	$49,642	$48,767	$42,379	$240,011
Value of nonresidential housing					
Industrial buildings	$25,756	$22,819	$15,127	$115,103	$58,345
Office, banks, and professional buildings	$25,861	$36,516	$49,133	$27,987	$51,624
Stores and other mercantile buildings	$34,482	$29,827	$14,574	$18,246	$43,665
Other	$40,168	$27,560	$24,072	$24,775	$61,768
Consumer price index					
North Central US	-	131.3	-	128.0	-
North Central/population more than 4,000,000	-	133.2	-	129.6	-
North Central/population 385,000 to 1,250,000	-	130.9	-	127.2	-
North Central/population 75,000 to 385,000	-	128.9	-	126.4	-
North Central/population less than 75,000	-	128.7	-	125.8	-
Chicago	n.a.	240.1	235.5	232.7	210.1
St. Louis	n.a.	-	238.1	-	211.1
Farm prices	-	104	111	113	117
	1979:IV	1979:III	1979:II	1979:I	1978:IV
Personal income (in millions)	$114,130	$112,234	$108,287	$106,555	$103,024

Sources available upon request. [a]The Illinois Bureau of Labor Security is currently revising all labor force data for Illinois dating back to 1977. As a result, publication of the leading and coincident indicators for May 1980 has been delayed. n.a. not available.

The Recession Continues

The economy has moved into its second quarter of contraction. Production and employment continue to decline, and consumer spending shows weakness. Other symptoms of recession are in evidence. The rate of inflation, though rapid by historical standards, has moderated. Similarly, interest rates have moved lower.

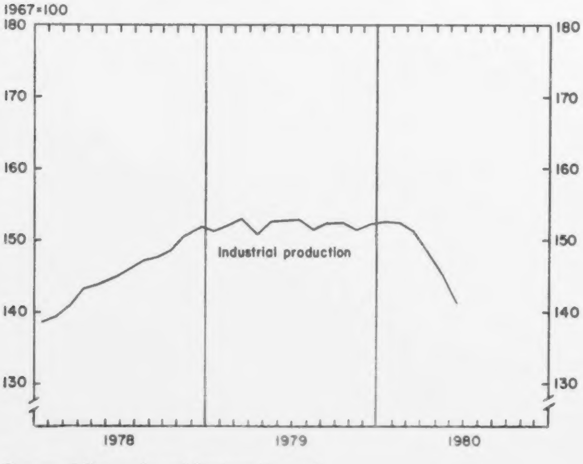
Output and Employment Have Fallen

Physical output has declined sharply since the beginning of the year, as real GNP fell at more than a 9 percent annual rate in the second quarter. The Federal Reserve Board's Index of Industrial Production has dropped at a 17 percent annual rate since January (see chart). Weakness has been widespread, but has been especially pronounced in automobile production and in related products.

Some analysts are included to view production decline as an aspect of an inventory adjustment process. According to this view, inventories rise to an excessive level as a consequence of shrinking sales; then, businesses reduce their orders for goods at various stages in the production process; as a result there are declines in production; after a time, inventories are drawn down to acceptable levels. Those who view recession in these terms are inclined to be encouraged. Inventories are already quite low relative to sales. There is little basis for further inventory contraction.

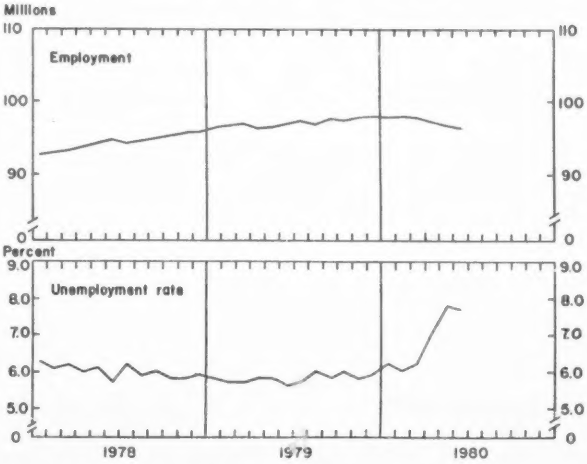
Employment has drifted lower since late winter. In the period since February, employment has declined at a 4.4 percent rate (see chart). Because employment has fallen, unemployment has moved higher. The unemployment rate in mid-June reached 7.7 percent, up markedly from a 6 percent level in February.

Industrial Production



Bureau of Economic and Business Research

Employment and Unemployment Rate



Bureau of Economic and Business Research

Surprisingly, the unemployment rate declined slightly from May to June, even though employment weakened slightly. This peculiar result reflects a net movement in the population from the ranks of both the employed and the unemployed to a status outside of the labor force. Employment declined by about 450,000 workers from May to June and unemployment declined by about 148,000. Thus, the labor force (the sum of employment and unemployment) has fallen by about 600,000 persons, or 0.6 percent. But the fall in unemployment represents a 1.8 percent decline. Hence, the unemployment rate — unemployment divided by the labor force — dropped moderately in June.

Inflation Has Moderated

The rate of inflation has moderated since spring. Consumer prices have risen at an 11.5 percent annual rate since March; by comparison, they rose at more than an 18 percent rate in the preceding three months. Producer prices have risen at a 4.6 percent rate since March, compared with nearly a 9 percent rate in the preceding three months.

Although any moderation in inflation is welcomed,

(*Continued on page 12*)

Comparative Economic Data for Selected Illinois Cities, May 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)		Employment (000)		Estimated work force unemployed (percent)	
	May 1980	% change from May 1979	May 1980	% change from May 1979	May 1980	% change from May 1979	May 1980	% change from May 1979	May 1980	May 1979
ILLINOIS	$159,747[a]	*+13.4*	3,196.2[a]	*-91.0*	$47,523[a]	*-9.2*	5,027.0	*+2.1*	*7.3*	*4.7*
NORTHERN ILLINOIS										
Chicago	132,539	*+37.0*	1,582.2	*-8.1*	37,375	*-8.1*	3,152.4[b]	*+2.6*	*6.8*[b]	*4.6*[b]
Aurora	4,332	*+35.9*	143.4	*+5.1*	597	*-2.0*	36.1	*+2.6*	*7.1*	*4.3*
Elgin	1,362	*+53.4*	83.7	*-9.1*	773	*+8.6*	27.8	*+2.6*	*8.1*	*5.1*
Joliet	685	*+167.2*	347.5	*-15.2*	380	*-0.5*	*34.5*	*+2.4*	*11.8*	*5.9*
Kankakee	1,537	*+15.2*	75.6[c]	*-1.3*	275	*-0.4*	36.9[b]	*+0.8*	*10.2*[b]	*7.6*[b]
Rock Island-Moline	2,285	*-42.4*	130.9[d]	*+2.0*	1,423	*+19.4*	99.7[e]	*-3.2*	*7.7*[e]	*4.1*[e]
Rockford	3,098	*-3.0*	152.0	*-9.9*	992	*+3.1*	124.6[b]	*+1.5*	*8.4*[b]	*4.3*[b]
CENTRAL ILLINOIS										
Bloomington-Normal	2,636	*-34.5*	46.3	*-5.9*	1,081	*+12.1*	*57.3*[b]	*+3.4*	*5.4*[b]	*3.3*[b]
Champaign-Urbana	397	*-82.7*	51.3	*3.3*	672	*+2.9*	79.1[b]	*+6.3*	*5.4*[b]	*3.4*[b]
Danville	418	*-83.4*	42.0	*-7.3*	244	*-0.41*	16.8	*-0.6*	*13.6*	*8.1*
Decatur	3,270	*7.5*	125.7	*-6.3*	499	*-7.8*	53.7[b]	*+2.9*	*10.4*[b]	*5.6*[b]
Galesburg	1,040	*-13.6*	28.3[c]	*-9.6*	322	*+98.8*	14.3	*+1.4*	*12.3*	*7.1*
Peoria	621	*-90.6*	186.9	*-5.2*	1,564	*+3.0*	161.7[b]	*+1.2*	*7.4*[b]	*4.2*[b]
Quincy	551	*-25.1*	40.8	*-10.1*	246	*-0.4*	18.6	*+1.4*	*9.0*	*7.1*
Springfield	1,242	*-77.4*	118.7	*+0.5*	2,054	*+2.6*	91.7[b]	*+7.5*	*6.7*[b]	*4.6*[b]
SOUTHERN ILLINOIS										
East St. Louis	3,024	*+2,807.7*	23.3	*-4.5*	225	*+19.1*	22.6	*+2.7*	*8.7*	*9.2*
Alton	245	*-35.4*	62.5	*-17.7*	142	*+1.43*	13.7	*0.0*	*11.3*	*6.6*
Belleville	206	*-77.1*	25.9	*-0.4*	437	*+24.2*	17.3	*-0.6*	*10.4*	*7.1*
Carbondale-Murphysboro	259	*-29.4*	37.7	*3.0*	353	*+15.0*	11.8[f]	*7.3*	*5.7*[f]	*5.2*[f]

[a] Total for cities listed. [b] Data for standard metropolitan statistical area. [c] Includes immediately surrounding territory. [d] Includes East Moline. [e] Data for Carbondale township. [f] Data for the City of Carbondale.

Unconscionability and Contracts of Adhesion: Dealing With the Problems of Standardized Form Contracts

MARK ROSZKOWSKI

Standardized form contracts, commonly known as contracts of "adhesion," play an important role in modern commercial transactions. The many reasons for their increasing popularity are well summarized in Comment (a) to §237 of the Restatement of Contracts (Second):

"Standardization of agreements serves many of the same functions as standardization of goods and services; both are essential to a system of mass production and distribution. Scarce and costly time and skill can be devoted to a class of transactions rather than to details of individual transactions. Legal rules which would apply in the absence of agreement can be shaped to fit the particular type of transaction, and extra copies of the form can be used for purposes such as recordkeeping, coordination, and supervision. Forms can be tailored to office routines, the training of personnel, and the requirements of mechanical equipment. Sales personnel and customers are freed from attention to numberless variations and can focus on meaningful choice among a limited number of significant features: transaction-type, style, quantity, price, or the like. Operations are simplified and costs reduced, to the advantage of all concerned."

Most contracts entered into by consumers are adhesion contracts. Examples include insurance policies; agreements for the sale or lease of personal or real property; mortgages; instalment sales contracts and other agreements creating security interests; and checking and savings account agreements.

Despite their obvious utility, adhesion contracts present a major problem-area in contract law today. In these agreements, one party dictates many of the contract terms to the other (the "adhering" party) who generally stands in a substantially inferior bargaining position. Since the contract is drafted solely by one party and is given to the other on a "take it or leave it" basis, its terms are often unreasonably favorable to the drafting party. The law of contracts is based upon a premise that the agreement represents a mutual manifestation of assent to terms negotiated by the parties at "arms length." An arms length transaction is one negotiated by unrelated parties, each acting in his own self-interest. This premise is not ordinarily present in adhesion contracts. The "adhering" party frequently must either accept the terms as written, or is precluded from obtaining the goods or services involved, since similar provisions are used by all drafting parties. The following material discusses the doctrine of unconscionability and some other means that have been developed by courts and legislatures to deal with the problems created by this disparity in bargaining power.

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Sources of Contract Law

Contract law is derived primarily from two sources: Article 2 of the Uniform Commercial Code; and the common law. The Uniform Commercial Code (UCC), which was prepared under the joint sponsorship of the American Law Institute and the National Conference of Commissioners on Uniform State Laws, is a comprehensive statute governing most aspects of commercial transactions including contracts, secured transactions, and commercial paper (notes and checks). The UCC is truly a uniform statute, since it has been adopted, with some deletions and modifications in every state of the union. The code contains nine substantive articles, of which Article 2 (Sales) is concerned with contracts. By its terms, Article 2 governs "transactions in goods" (§2-102). Goods generally includes tangible personal property (for example, an automobile or a television set). Contracts other than those covered by the code (for example, contracts for the sale of land, employment and other personal services, and construction contracts) are governed by "common law" contract principles, that is, judge-made law evolving through a series of decided cases. Common law principles for contracts as well as other legal areas governed by the common law (for example, torts, property, agency), are summarized and explained in the Restatements of the Law, published by the American Law Institute. The Restatements are published by a private organization, not a legislature, and thus do not have the force of law. However, they are extremely valuable tools, for both courts and lawyers, and have themselves significantly aided in the development of the common law. The Restatements are periodically updated to reflect changes and trends in the law. The Restatement of Contracts (Second), updating the original Restatement published in 1932, is in its final drafting stages. Interestingly, it reflects a growing trend by courts to apply UCC contract principles to all types of contracts. Given the success of the UCC, and the important place the Restatements have occupied in the evolution of common law principles, it appears that Article 2 of the code may ultimately become the uniform law of contracts.

Unconscionability

An important tool used to deal with the problems created by adhesion contracts is the doctrine of unconscionability. It has been adopted by both the UCC and the common law and is thus a general principle of contract law. As stated in the UCC, §2-302(1), if a court as a matter of law finds a contract or clause of a contract to have been unconscionable at the time it was made, the court may (1) refuse to enforce the contract, (2) enforce the remainder of the contract without the unconscionable provision, or (3) limit the effect of the unconscionable provision to avoid any unconscionable result. "Unconscionability" is not specifically defined, but Official Comment 1 to §2-302 indicates that

"The basic test is whether, in the light of the general commercial background and the commercial needs of the particular trade or case, the clauses involved are so one-sided as to be unconscionable under the circumstances existing at the time of the contract. . . . The principle is one of the prevention of *oppression and unfair surprise* . . . " (Italics added.)

"Oppression" in this context refers to a contract or provision which is unreasonably harsh or unfair, generally extracted by a party with vastly superior bargaining power. Such contracts or terms are unenforceable as contrary to public policy. (This has been referred to as "substantive" unconscionability.) If "unfair surprise" (sometimes called "procedural" unconscionability) is involved, enforcement is denied on the basis that the informed, voluntary mutual assent essential to a binding contract is not present. This frequently occurs when a person signs a standardized form contract, containing a provision, commonly in fine print, which substantially alters his reasonable expectations under the agreement. Frequently, both types of unconscionability are present in a single term or contract.

Consistent with the preceding discussion, a noted judge stated

"Unconscionability has generally been recognized to include an absence of meaningful choice on the part of one of the parties together with contract terms which are unreasonable favorable to the other party . . . In many cases, the meaningfulness of the choice is negated by a gross inequality of bargaining power. The manner in which the contract was entered is also relevant to this consideration. Did each party to the contract, considering his obvious education or lack of it, have a reasonable opportunity to understand the terms of the contract, or were the important terms hidden in a maze of fine print and minimized by deceptive sales practices? . . . In such a case the usual rule that the terms of the agreement should not be questioned should be abandoned and the court should consider whether the terms of the contract are so unfair that enforcement should be withheld." (Judge Skelly Wright in *Williams v. Walker-Thomas Furniture Co.*, 350 F. 2d 445, 449-50 (D.C. Cir. 1965).

Additional guidance as to the meaning of unconscionability in the consumer context is provided by the Uniform Consumer Credit Code adopted in 10 states and the Uniform Consumer Sales Practices Act adopted in 3 states. Both contain an unconscionability provision similar to that contained in the Uniform Commercial Code. However, these statutes list a number of factors to be considered by the court in determining whether a contract or term is unconscionable, which should serve as a guide to courts interpreting §2-302. Some of these factors include

(1) The fact that the seller knowingly took advantage of the inability of the consumer to protect his interests by reason of physical or mental infirmities, ignorance, illiteracy, inability to understand the language of the agreement, or other similar factors (for example, when the seller uses an agreement written in English which is disadvantageous to the buyer, who is literate only in Spanish, and the terms of the agreement are not translated or otherwise explained).

(2) The fact that the transaction was entered into at a price grossly exceeding the value of the property or services sold or leased. Value in this context is equal to the price at which similar property or services may be obtained by a like consumer (for example, when the seller, in a home solicitation sale, induces the buyer to purchase a set of cookware for $375 which is readily available in stores for $125 or less).

(3) The fact that the seller or lessor knew, at the time of the sale or lease, that the consumer would be unable to receive substantial benefits from the goods or services sold or leased (for example, if the seller induces two poor families to purchase two expensive vacuum cleaners when the seller knows or has reason to know that both families share the same apartment and one rug; or a sale of an English-language encyclopedia set for personal use to a bachelor who speaks and reads only Spanish).

(4) The fact that seller, lessor, or lender knew, at the time the contract was made, that there was no reasonable probability of full payment of the obligation by the consumer (for example, a sale of goods on credit to a low-income consumer, without expectation of full payment, but with intent to repossess and resell them at a profit, or with knowledge that the buyer's income is insufficient to meet the periodic payments). (UCCC §5.108(4) and Comment 4 (1974); UCSPA §4 and Commissioners' Comment (1971)).

§2-302 allows the court as a matter of law to refuse to enforce or to limit the effect of these unreasonably unfair contracts or provisions. Since the issue is a matter of *law*, relief on the basis of unconscionability is granted in the discretion of the court, not as a question of fact for the jury to decide. Thus, relief granted under §2-302 is essentially equitable as opposed to legal in nature. However, if a contract or provision is attacked as unconscionable, the parties must be afforded a reasonable opportunity to present evidence as to its commercial setting, purpose, and effect to aid the court in making its decision (§2-302(2)).

Additionally, in ruling on the issue, the court may look to the lack of good faith of the party imposing the allegedly unconscionable term or bargain. The code and the common law impose a duty upon the parties to act in good faith. Good faith means honesty *in fact* in transaction or conduct concerned (§1-203). In the case of a merchant seller, it also includes the observance of reasonable commercial standards of fair dealing in the trade (§2-103(1)(b)). Although the good faith provision applies by its terms only to the "performance or enforcement" of the contract, courts have used it to determine whether contract provisions were unconscionable when made (that is, in the formation of the contract).

Since the court is afforded broad discretion under §2-302, it is able to police explicitly against unconscionable contracts or terms. As explained in Official Comment 1 to §2-302:

> "In the past, such policing has been accomplished by adverse construction of language, by manipulation of the rules of offer and acceptance or by determinations that the clause is contrary to public policy or to the dominant purpose of the contract. This section is intended to allow the court to pass directly on the unconscionability of the contract or particular clause therein and to make a conclusion of law as to its unconscionability."

The code thus recognizes that frequently "hard cases make bad law." For example, a court may be asked to enforce an unreasonably unfair contract term. The term is, however, contained in an unambiguous agreement containing the basic elements necessary for enforceability (that is, offer and acceptance, consideration, competent parties, and an otherwise legal purpose).

Under §2-302, the court can provide relief to the oppressed party by ruling directly on the unconscionability of the term without finding lack of consideration when consideration in fact exists, or lack of agreement when, in fact, there is an agreement, or ambiguity where none exists. In other words, if the court has latitude to limit the effect of an unreasonably unfair contract, it can reach the desired result in a specific case without creating a bad precedent for future contract cases presenting other issues. Thus, the unconscionability provision is a "safety valve," allowing the court to achieve the right result in a "hard case" without making "bad law" for future disputes.

In the context of adhesion contracts, unconscionability may arise out of gross disparity in the values exchanged or if the form contract binds only the person who signs. Other provisions which may be unconscionable include warranty and liability disclaimers, penalties, or terms granting substantial advantages in enforcement and remedy to the drafting party. As previously indicated, the effect of such provisions is aggravated when the person signing has limited intelligence, financial resources, education, or knowledge of the English language.

Assent to Terms Not Bargained-for

The relationship between bargaining power and unconscionability is explained in Comment (d) to the Restatement of Contracts (Second) §234:

> "A bargain is not unconscionable merely because the parties to it are unequal in bargaining position, nor even because the inequality results in an allocation of risks to the weaker party. But gross inequality of bargaining power, together with terms unreasonably favorable to the stronger party, may confirm indications that the transaction involved elements of deception or compulsion, or may show that the weaker party had no meaningful choice, no real alternative, or did not in fact assent to the unfair terms."

The issue of lack of assent to the unfair terms referred to in the preceding quotation is of particular importance in the study of unconscionability and adhesion contracts. Traditionally, a person, by signing his name to a contract, manifests his assent to its terms and may not later assert that he had not read or did not understand its contents. (This rule is generally stated in terms of imposing a "duty to read" upon a person who signs a contract.) However, in an adhesion contract, the party signing affirmatively assents to a few terms, commonly those which are inserted in the blanks on the standardized contract. He neither reads nor understands the printed terms contained in the remainder of the form. This fact is generally known to the drafting party. The party signing basically relies on the other's good faith and upon the implied representation that like terms are being accepted by others. The issue thus presented is: to what extent should the "adhering" party be bound to the unknown terms? Commenting on this issue in the *Williams* decision previously cited, Judge Wright stated:

> "Ordinarily one who signs an agreement without full knowledge of its terms might be held to assume the risk that he has entered a one-sided bargain. But when a party of little bargaining power, and hence little real choice, signs a commercially unreasonable contract with little or no knowledge of its terms, it is hardly likely that his consent, or even an objective manifestation of his consent, was ever given to all the terms."

The Restatement of Contracts (Second) §237 takes the position that although the person signing a standardized agreement is bound to its terms, even without reading or understanding them, he is not bound to "unknown terms which are beyond the range of reasonable expectation." In other words, a party who signs an adhesion contract does not assent to a term if the drafting party has reason to believe that the signer would not have agreed to it had he known about it. The drafting party has "reason to believe" if the term (1) is bizarre or oppressive, or (2) eviscerates the nonstandard terms explicitly agreed upon, or (3) eliminates the dominant purpose of the transaction.

The UCC follows this approach with respect to warranty disclaimers by refusing to allow general language disclaiming all warranties contained in a form contract to eliminate express warranties based upon the negotiation of the parties. Note that the Restatement is essentially dealing here with the problem of unconscionability by "unfair surprise" by refusing to enforce provisions which are contrary to reasonable expectations (which indicates a lack of assent to those terms) (Restatement, Contracts (2d) §237, Comment (f)). The same reasoning

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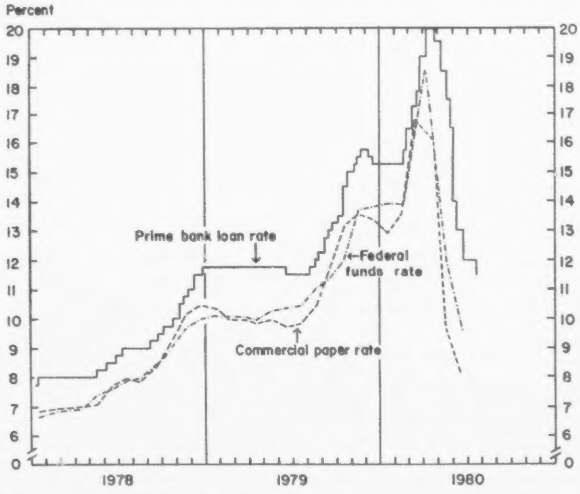
also applies in determining the legal effect of other standardized documents, such as claim checks or automobile parking lot tickets. Generally, the customer views these documents as merely identification tokens. Thus, a party without knowledge or reason to know that the token purports to be a contract would not be bound by terms printed thereon (Restatement, Contracts (2d) §237, Comment (d)).

Conclusion

The unconscionability doctrine and the Restatement approach (if adopted by a substantial number of courts) will continue to provide relief from the more onerous effects of adhesion contracts. Note, however, that these approaches only provide protection after a person has signed an unreasonably unfair contract and is seeking to avoid its consequences in a subsequent lawsuit. They do not restore an equality of bargaining position necessary to prevent the inclusion of such provisions in the first place. Additional statutory relief has been directed to this end. For example, many states are adopting residential landlord and tenant statutes which define rights and duties of both parties to protect tenants from the effects of one of the most oppressive adhesion contracts, the residential lease (particularly in multiunit dwellings). States have passed statutes regulating insurance policies, bills of lading, retail instalment sales, and small loans. Additionally, statutes frequently provide for unenforceability of certain contract provisions for public policy reasons (for example, confession of judgment, exculpatory, and waiver of defense clauses). At the federal level, the Magnuson-Moss Warranty Act gives consumers additional protection with respect to written warranties covering consumer goods. Further, by Federal Trade Commission rule, the effect of the holder in due course doctrine has been significantly curtailed in consumer credit transactions. Statutes such as these, when coupled with diligent court policing through the unconscionability doctrine, should continue to provide increasingly greater protection to persons signing standardized form contracts.

Interest Rates



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Recession

(Continued from page 7)

we should not delude ourselves into the belief that the inflation problem is behind us. It is more plausible to suppose that there has been little change at all in the core rate of inflation. Consumer prices have risen at well over a 10 percent rate for the past 30 months. The core rate probably never reached the 18 percent level; that was a short-term phenomenon. So too, the core rate has probably not yet moved below the double-digit level — even though statistics relating to recent months suggest otherwise.

Interest rates have stabilized over the past month, but are markedly lower than during the spring (see chart). The prime rate remains above 11 percent at this writing, but will probably have drifted lower before publication. Other short-term interest rates show a similar pattern. After reaching higher in early April, they dropped dramatically through May. Since late May, however, rates have tended to edge higher.

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